

## **FACT SHEET FOR NPDES PERMIT WA-002095-8**

### **FACILITY NAME:**

**Midway Sewer District – Des Moines Creek  
Wastewater Treatment Plant**

### **SUMMARY**

This fact sheet is a companion document to the draft National Pollutant Discharge Elimination System (NPDES) Permit for Midway Sewer District's Des Moines Creek Wastewater Treatment Plant (WWTP). The fact sheet explains the nature of the proposed discharges, the Department of Ecology's (the Department's) decisions on limiting the pollutants in the wastewater, and the regulatory and technical basis for those decisions. The fact sheet and draft permit are available for review (see Appendix A—Public Involvement for more detail on the public notice procedures).

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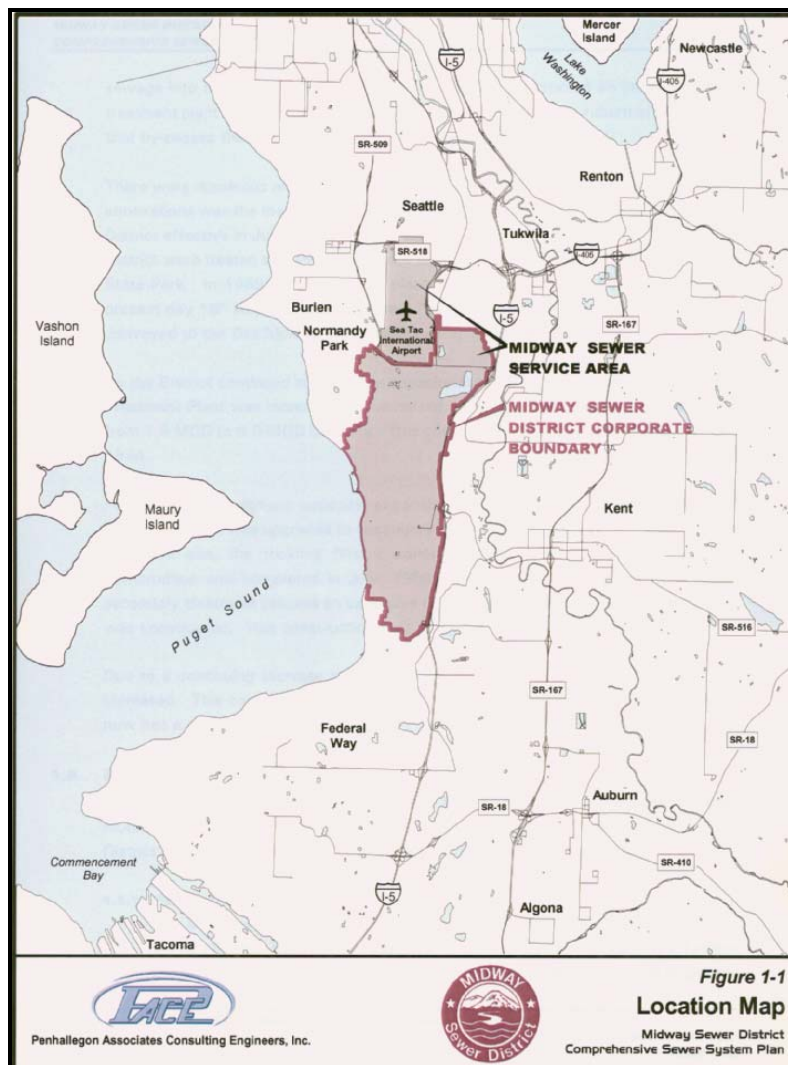
## INTRODUCTION

The Federal Clean Water Act (FCWA, 1972, and later modifications, 1977, 1981, and 1987) established water quality goals for the navigable (surface) waters of the United States. One of the mechanisms for achieving the goals of the Clean Water Act is the National Pollutant Discharge Elimination System of permits (NPDES permits), which is administered by the Environmental Protection Agency (EPA). The EPA has authorized the State of Washington to administer the NPDES permit program. Chapter 90.48 RCW defines the Department of Ecology's authority and obligations in administering the Wastewater Discharge Permit Program.

The regulations adopted by the State include procedures for issuing permits (Chapter 173-220 WAC), technical criteria for discharges from municipal wastewater treatment facilities (Chapter 173-221 WAC), water quality criteria for surface and ground waters (Chapters 173-201A and 200 WAC), and sediment management standards (Chapter 173-204 WAC). These regulations require that a permit be issued before discharge of wastewater to waters of the state is allowed. The regulations also establish the basis for effluent limitations and other requirements which are to be included in the permit. One of the requirements (WAC 173-220-060) for issuing a permit under the NPDES permit program is the preparation of a draft permit and an accompanying fact sheet. Public notice of the availability of the draft permit is required at least thirty (30) days before the permit is issued (WAC 173-220-050). The fact sheet and draft permit are available for review (see Appendix A—Public Involvement of the fact sheet for more detail on the public notice procedures).

The fact sheet and draft permit have been reviewed by the Permittee. Errors and omissions identified in this review have been corrected before going to public notice. After the public comment period has closed, the Department will summarize the substantive comments and the response to each comment. The summary and response to comments will become part of the file on the permit and parties submitting comments will receive a copy of the Department's response. The fact sheet will not be revised. Comments and the resultant changes to the permit will be summarized in Appendix G—Response to Comments.

GENERAL INFORMATION	
Applicant	Midway Sewer District P.O. Box 3487 Des Moines, WA 98032-0209
Facility Name and Address	Des Moines Creek Treatment Plant 1200 South 216 <sup>th</sup> Street Des Moines, WA 98198-0704
Type of Treatment	Trickling Filter/Solids Contact
Discharge Location	Waterbody Puget Sound Latitude: 47° 24' 12" N Longitude: 122° 20' 12" W
Water Body ID Number	WA-PS-0270

FIGURE 1: VICINITY OF MIDWAY SEWER DISTRICT<sup>1</sup>

## BACKGROUND INFORMATION

### DESCRIPTION OF THE FACILITY

#### HISTORY

The Midway Sewer District (District) operates the Des Moines Creek Treatment Plant. The original plant began operation in 1965, and an upgrade to secondary treatment was completed in 1989. It currently serves an area of approximately 12 square miles in King County, Washington. The service area is bounded on the north by South 170<sup>th</sup> Street, on the east by U.S. Interstate 5 (I-5), on the south by South 272<sup>nd</sup> Street and Star Lake Road, and on the west by Puget Sound. The service area includes the city of Des Moines, portions of the cities of Burien, Federal Way, Kent, Normandy Park, and SeaTac, and a small portion of unincorporated King County.

<sup>1</sup> Penhallegon Associates Consulting Engineers, Inc. and URS Corporation, 2000 *Comprehensive Sewer System Plan*

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Currently, an area approximately 1.2 square miles located within the District does not have sewer service. The population served is projected to increase from a base of 39,204 in 1990 to approximately 52,570 by 2020. Dry weather flows are expected to increase from about four mgd in 1995 to six mgd by 2020 while wet weather flows are expected to increase from 5.9 million gallons per day (mgd) in 1995 to 8.3 mgd in 2020. The service area is mostly residential but includes domestic sewage from the SeaTac International Airport, restaurants, and several large motels.

In 1994 and 1995, the flows and total suspended solids to the treatment plant were found to exceed the 85 percent of the design capacity for three or more consecutive months. In August 1995, the Washington State Department of Ecology notified the District and directed the District to prepare a “Plan to Maintain Adequate Capacity.” On December 5, 1996, the District submitted an engineering report, *Evaluation of Wastewater Facility Capacity, Midway Sewer District*, November 1996, URS Consultants, Inc., which addressed the treatment plant capacity. The report determined, with the exception of the primary digester and the chlorine contact chamber, all other unit processes could treat flows at or above a flow rate of nine mgd. The report recommended the construction of an equal volume primary digester to increase the capacity to 12 mgd; modifying the chlorine contact chamber to incorporate ultraviolet disinfection; and replacing the existing 30-inch diameter effluent outfall with a 42-inch diameter outfall. The District later amended the 42-inch diameter outfall by a 48-inch diameter outfall to provide additional capacity for periods of higher than predicted flows. On June 3, 1997, Ecology issued an approval of the engineering report and addendum.

In 1999, the District completed the construction of the primary digester and the ultraviolet disinfection system in accordance with the engineering report. The primary digester has been operational since September 1, 1999, and the ultraviolet disinfection system since September 23, 1999. The 48-inch diameter outfall is currently under construction and is anticipated to be operational by the end of year 2006.

Midway Sewer District submitted the *2000 Comprehensive Sewer System Plan* which was approved by Ecology on May 16, 2000.

The Des Moines Creek Treatment Plant is ranked as an EPA major facility.

#### COLLECTION SYSTEM STATUS

Based on information provided in the *2000 Comprehensive Sewer System Plan*, the District maintains approximately 135 miles of 8-inch or larger sewer mains, approximately 6 miles of force mains, less than 1 mile of pressure mains, approximately 0.9 mile of outfall. The District maintains a total of 13 pump stations. There are 5 wet well/dry well stations and 8 submersible stations.

**Infiltration and Inflow Assessment**

Midway Sewer District submitted a detailed *Infiltration and Inflow Assessment*<sup>2</sup> with the application for permit renewal. Calculations and methods were based on EPA's Infiltration/Inflow (I/I) document (Ecology Publication No. 97-03). In comparison to the standard, neither inflow nor infiltration were found to be excessive. Based on flow data from 2000 through 2005, infiltration was found to be 109.4 gpcd (gallons per capita per day) as compared to the level of 120 gpcd which EPA considers to be excessive. Based on the same data set, inflow was estimated to be 119.3 gpcd, well below the EPA guideline of 275 gpcd.

Based on the District use of flow blending during very high peak flows (greater than 10 MGD), the Department is again requiring an Infiltration and Inflow Assessment as a submittal requirement of the permit. The assessment should address the I/I estimates and also listing of completed and planned projects to address I/I.

**TREATMENT PROCESSES**

Refer to Appendix C—Process Flow Diagrams.

**Headworks**

The influent flow rate is measured using an ultrasonic transducer as the water flows through a Parshall flume. The influent flow passes through a step screen that was installed in December 2002. The solid waste that is caught by the screens is collected and bagged for disposal at a hazardous waste landfill. The wastewater flows through the grit chamber. The grit is pumped from the bottom of the chambers and into a new classifier also installed in December 2002. The grit is collected and bagged for disposal.

**Primary Treatment**

The wastewater flows through the primary clarifiers, where solids are settled out of the waste water. Scum is removed from the surface of the water, is collected in the scum tank, and then pumped to the digesters. The water is pumped from the primary clarifiers to secondary treatment using the primary pumps (4 total). Each primary pump has a 9 MGD capacity.

**Secondary Treatment**

Secondary treatment is accomplished using trickling filters (also called Bio-Towers). Each large tower is filled with a plastic media. The biomass attaches to the media and aids in the biological treatment of the waste water. This method of treatment has reportedly worked well for the facility since it was installed in 1989. Blowers provide for the forced ventilation of air through the towers. The air is then scrubbed using a mist tower in which a Sodium Hypochlorite mist is injected into the bottom of the tower for odor control. The waste water percolates through the media to the bottom of the tower from which it flows by gravity to the aeration basins. The aeration basin uses a combination of old activated sludge from the Bio-towers with new activated sludge generated in the aeration basin to produce very settleable solids in the secondary clarifiers (2).

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<sup>2</sup> Infiltration and Inflow Assessment for Des Moines Creek Wastewater Treatment Plant prepared for Midway Sewer District by USR Corporation, April 2005.

**Disinfection**

There are two banks of UV lights used for disinfection of the waste water. Each bank has the capacity to disinfect 9 MGD. Flows above 18 MGD are disinfected using Sodium Hypochlorite. It is necessary to pull the UV system out of the UV channel during extremely high flows to protect the electrical components of the system. The effluent is sampled and analyzed for total residual chlorine when Sodium Hypochlorite is used for disinfection. The final effluent is automatically sampled on a time-proportional basis.

**Solids Handling**

Solids from the primary and secondary clarifiers are pumped to the gravity thickener to be thickened to about 1.5% solids before being pumped to the digesters. The plant is equipped with two large floating roof digesters allowing for a sludge detention time of 60+ days. Methane gas from the digesters is burned in one of two boilers to produce the hot water that is used to heat the digester sludge. The digested sludge is pumped to 1 of 2 belt filter presses for dewatering. The filter cake (biosolids) leaves the new filter press at about 18% solids. The biosolids travel by a shaftless screw conveyor into the truck to transport to Natural Selection Farms in Sunnyside, WA.

**Odor Control**

The facility uses 3 different odor control technologies for exceptional odor control. Sodium Hypochlorite mist towers are used at the headworks and at the biotowers. A carbon bed is used at the gravity thickener. The filter building has a dedicated packed tower with automatic pH (Sodium Hydroxide) and ORP (Sodium Hypochlorite) control. In addition, most of the areas of the plant that may contribute to odor problems are covered.

**Emergency Backup Power**

The facility has 2 diesel-powered emergency generators that can provide power to run the entire plant in the event of a power failure. Automatic transfer switches provide for a seamless transfer of power. The control panel/control computer is equipped with a UPS (uninterrupted power supply).

**Operator Certification and Hours/Day Operation**

According to Chapter 173-230 WAC, the treatment plant is classified as a III which requires a Group III certification level. The plant employs 10 operations people, including the 2 laboratory technicians. The plant is staffed from 7:30 am to 6:00 pm, Monday-Friday, and 7:30 am to 4:00 pm, Saturday and Sunday. The necessary emergency call-ins are assigned on a rotating basis. The facility has a SCADA system that provides a page to the on-call operator to respond to the necessary plant alarm conditions. An answer service is also used if needed to contact personnel to respond to off-hour alarms. The facility appears to have an adequate level of staffing and a reliable system for responding to off-hour alarms.

**Wet Weather Operation (Flow Blending)**

The secondary treatment units at the Des Moines Creek WWTP are designed to treat flows up to 9 MGD. During wet weather conditions, flows to the treatment plant above 10 MGD and up to 18 MGD are given primary treatment and are then bypassed around the secondary treatment process. The diverted flow is then blended together with the secondary treated flows prior to disinfection before discharge from the plant. The intentional bypass of high flows around

secondary treatment during wet weather conditions is referred to as flow blending. The permit allows for flow blending as a means to handle extreme flow peaks in an environmentally sound manner. The plant must meet the permit limits and comply with the reporting requirements of the permit during all flow blending events. Efforts should be made by the facility at all times to minimize the need to flow blend by aggressively minimizing inflow and infiltration.

#### DISCHARGE OUTFALL

Secondary treated and disinfected effluent is discharged from the facility to Puget Sound via a 30-inch diameter pipe, which extends 1,400 feet out from the beach to a depth of approximately 178 feet. The diffuser section, which was installed in 1984, is 200 feet long and has 24 3-inch diameter ports and one 5-inch diameter end port. Treated industrial wastewater from the SeaTac International Airport Industrial Wastewater Treatment Plant is also discharged through this outfall (NPDES Permit No. WA-002455-1). Under the terms of a 30-year agreement with the Midway Sewer District, SeaTac cannot discharge flows in excess of 3.6 mgd from the Industrial Wastewater Treatment Plant when the combined flow from SeaTac and Midway Sewer District exceeds 90% of the outfall's present capacity of 19 mgd.

The District has submitted an engineering report for plant expansion, which includes replacing the 30-inch diameter outfall with a 48-inch diameter outfall and new diffuser in the same location. As of July 2000, the trunk and outfall are completed except for that portion under Marine View Drive. At the earliest, the outfall may be operational by the end of year 2006.

If the new outfall achieves dilution ratios of equal to or greater than the existing outfall, then the Department only requires notification of completion of the new outfall to permit its use under the permit. In the case of equal to or greater dilution, a permit modification is not required since there will be no change to the permit limits or any other permit requirements. However, the dilution ratio achieved with the new outfall will be used as the basis for future permits.

If the new outfall achieves dilution ratios less than those for the existing outfall, then a permit modification will be required and the permit limits will be based on the new dilution ratios.

#### RESIDUAL SOLIDS

The treatment facilities remove solids during the treatment of the wastewater at the headworks (grit and screenings), and at the primary and secondary clarifiers, in addition to incidental solids (rags, scum, and other debris) removed as part of the routine maintenance of the equipment. Grit, rags, scum, and screenings are drained and disposed of as solid waste at a landfill that accepts hazardous waste. Solids removed from the clarifiers are treated using digesters and then transported to Natural Selection Farms in Sunnyside, WA, for land application.

#### WASTE LOAD ASSESSMENT

As required, the Permittee submitted a waste load assessment with the application for permit renewal. The report concluded that there has not been a significant increase in flows to the plant over the period from of the previous permit (January 1999 to March 2005). TSS loading remained steady and BOD loading decreased slightly over the same period. Similar trends are seen in the DMR data submitted to Ecology and summarized in Appendix D.

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Based on the District's use of flow blending during very high peak flows (greater than 10 MGD), the Department is again requiring a "Summary of Flow Blending Events" as a submittal requirement of the permit. The assessment should address incidents of flow blending and also summary of each event to include date, duration, total volume of blended flow, and TSS and BOD concentrations in the effluent.

### PERMIT STATUS

The previous permit for this facility was issued on December 1, 2000, and modified on May 17, 2004. The previous permit placed effluent limitations on 5-day Biochemical Oxygen Demand (BOD<sub>5</sub>), Total Suspended Solids (TSS), pH, and Fecal Coliform bacteria.

An application for permit renewal was submitted to the Department on May 31, 2005, and accepted by the Department on June 14, 2005.

### SUMMARY OF COMPLIANCE WITH THE PREVIOUS PERMIT

The facility received its last inspection on September 23, 2004.

TABLE 2: INSPECTION SUMMARY

Inspection Date	Type of Inspection	Inspector
9/23/2004	COMPLIANCE EVALUATION (NON-SAMPLING)	KAREN BURGESS
9/23/2004	OPERATOR OUTREACH INSPECTION	CARL JONES
5/28/2003	COMPLIANCE EVALUATION (NON-SAMPLING)	KAREN BURGESS
8/6/2002	COMPLIANCE INSPECTION (WITH SAMPLING)	LORI LEVANDER

No violations were cited as a result of these inspections. The plant was found to be operating well and maintained in good condition.

During the history of the previous permit, the Permittee has remained good in compliance, based on discharge monitoring reports (DMRs) submitted to the Department and inspections conducted by the Department. During the period from December 2000 through April 2005, the Permittee had 3 minor permit violations. All of these violations were for low pH below the permit limit of 6.0 as shown on the DMR summary included in Appendix D. No enforcement actions were taken against the Permittee by the Department as a result of these violations.

### WASTEWATER CHARACTERIZATION

The concentration of pollutants in the discharge was reported in the NPDES application and in discharge monitoring reports. Appendix E includes a complete list of pollutants analyzed for the Permittee's effluent as required by the EPA Application Form 2A, Part D, Expanded Effluent Testing Data. The pollutants in the effluent that exceed detectable levels are characterized as follows:

TABLE 3: WASTE CHARACTERIZATION SUMMARY

POLLUTANT	MAXIMUM DAILY DISCHARGE				AVERAGE DAILY DISCHARGE					ANALYTICAL METHOD	ML/MDL	
	Conc.	Units	Mass	Units	Conc.	Units	Mass	Units	Number of Samples			
METALS (TOTAL RECOVERABLE), CYANIDE, PHENOLS, AND HARDNESS.												
ARSENIC	0.001	mg/l			0.001	mg/l	16.01	grams		2	200.9	0.001
COPPER	0.019	mg/l			0.0145	mg/l	232.28	grams		2	200.7	0.001
LEAD	0.001	mg/l			<.001	mg/l	16.01	grams		2	239.2	0.001
NICKEL	0.08	mg/l			0.04	mg/l	1281.5	grams		2	200.7	0.005
SELENIUM	0.003	mg/l			0.003	mg/l	48.05	grams		2	270.2	0.001
ZINC	0.048	mg/l			0.0455	mg/l	768.94	grams		2	200.7	0.001
BASE-NEUTRAL COMPOUNDS												
BIS (2-ETHYLHEXYL) PHTHALATE	8.5	ug/l			7.85	ug/l	125.75	grams		2	EPA 625	2.1

The level of pollutants which were measured in detectable concentrations in the effluent are typical of those found in the effluent from municipal wastewater treatment plants which receive light industrial and commercial wastewater such as Des Moines Creek WWTP.

### SEPA COMPLIANCE

No SEPA compliance issues exist at this time.

### PROPOSED PERMIT LIMITATIONS

Federal and state regulations require that effluent limitations set forth in an NPDES permit must be either technology- or water quality-based. Technology-based limitations for municipal discharges are set by regulation (40 CFR 133, and Chapters 173-220 and 173-221 WAC). Water quality-based limitations are based upon compliance with the surface water quality standards (Chapter 173-201A WAC), ground water standards (Chapter 173-200 WAC), sediment quality standards (Chapter 173-204 WAC), or the National Toxics Rule (Federal Register, Volume 57, No. 246, Tuesday, December 22, 1992.) The most stringent of these types of limits must be chosen for each of the parameters of concern. Each of these types of limits is described in more detail below.

The limits in this permit are based in part on information received in the application. The effluent constituents in the application were evaluated on a technology- and water quality-basis. The limits necessary to meet the rules and regulations of the State of Washington were determined and included in this permit. Ecology does not develop effluent limits for all pollutants that may be reported on the application as present in the effluent. Some pollutants are not treatable at the concentrations reported, are not controllable at the source, are not listed in regulation, and do not have a reasonable potential to cause a water quality violation. Effluent limits are not always developed for pollutants that may be in the discharge but not reported as present in the application. In those circumstances the permit does not authorize discharge of the non-reported pollutants. Effluent discharge conditions may change from the conditions reported in the permit application. If significant changes occur in any constituent, as described in 40 CFR 122.42(a), the Permittee is required to notify the Department of Ecology. The Permittee may be in violation of the permit until the permit is modified to reflect additional discharge of pollutants.

**DESIGN CRITERIA**

In accordance with WAC 173-220-150 (1)(g), flows or waste loadings shall not exceed approved design criteria.

The design criteria for this treatment facility are taken from the engineering report prepared by URS Consultants, Inc. titled, *Evaluation of Wastewater Facilities Capacity*, dated November 1996. On June 13, 2000, the District formally requested Ecology to revise the Des Moines Creek Treatment Plant capacity from 6 mgd to 9 mgd. Presented in Table 4 are the design criteria for the treatment plant reflecting 1999 plant improvements. The influent BOD<sub>5</sub> and TSS loading values are derived based on the revised design flow capacity of 9 mgd.

TABLE 4: DESIGN STANDARDS FOR DES MOINES CREEK WWTP

Parameter	Design Quantity
Monthly average flow (max. month)	9 MGD
Instantaneous peak flow	18 MGD
BOD <sub>5</sub> influent loading	18,765 lb/day
TSS influent loading	15,000 lb/day

**TECHNOLOGY-BASED EFFLUENT LIMITATIONS**

Municipal wastewater treatment plants are a category of discharger for which technology-based effluent limits have been promulgated by federal and state regulations. These effluent limitations are given in the Code of Federal Regulations (CFR) 40 CFR Part 133 (federal) and in Chapter 173-221 WAC (state). These regulations are performance standards that constitute all known available and reasonable methods of prevention, control, and treatment for municipal wastewater.

The following technology-based limits for pH, fecal coliform, BOD<sub>5</sub>, and TSS are taken from Chapter 173-221 WAC are:

TABLE 5: TECHNOLOGY-BASED LIMITS

Parameter	Limit
pH	Shall be within the range of 6 to 9 standard units
Fecal Coliform Bacteria	Monthly Geometric Mean = 200 organisms/100 mL Weekly Geometric Mean = 400 organisms/100 mL
BOD <sub>5</sub> (concentration)	Average Monthly Limit is the most stringent of the following: - 30 mg/L - may not exceed fifteen percent (15%) of the average influent concentration Average Weekly Limit = 45 mg/L
TSS (concentration)	Average Monthly Limit is the most stringent of the following: - 30 mg/L - may not exceed fifteen percent (15%) of the average influent concentration Average Weekly Limit = 45 mg/L

The following technology-based mass limits **BOD<sub>5</sub> and TSS** are based on WAC 173-220-130(3)(b) and 173-221-030(11)(b).

Monthly effluent mass loadings (lb/day) were calculated as the maximum monthly design flow (9 MGD) x Concentration limit (30 mg/L) x 8.34 (conversion factor) = mass limit 2250 lb/day.

The weekly average effluent mass loading is calculated as 1.5 x monthly loading = 3380 lb/day.

### *SURFACE WATER QUALITY-BASED EFFLUENT LIMITATIONS*

In order to protect existing water quality and preserve the designated beneficial uses of Washington's surface waters, WAC 173-201A-060 states that waste discharge permits shall be conditioned such that the discharge will meet established surface water quality standards. The Washington State surface water quality standards (Chapter 173-201A WAC) is a state regulation designed to protect the beneficial uses of the surface waters of the state. Water quality-based effluent limitations may be based on an individual waste load allocation (WLA) or on a WLA developed during a basin-wide total maximum daily loading study (TMDL).

#### NUMERICAL CRITERIA FOR THE PROTECTION OF AQUATIC LIFE

"Numerical" water quality criteria are numerical values set forth in the State of Washington's water quality standards for surface waters (Chapter 173-201A WAC). They specify the levels of pollutants allowed in a receiving water while remaining protective of aquatic life. Numerical criteria set forth in the water quality standards are used along with chemical and physical data for the waste water and receiving water to derive the effluent limits in the discharge permit. When surface water quality-based limits are more stringent or potentially more stringent than technology-based limitations, they must be used in a permit.

#### NUMERICAL CRITERIA FOR THE PROTECTION OF HUMAN HEALTH

The state was issued 91 numeric water quality criteria for the protection of human health by the U.S. EPA (EPA, 1992). These criteria are designed to protect humans from cancer and other diseases and are primarily applicable to fish and shellfish consumption and drinking water from surface waters.

#### NARRATIVE CRITERIA

In addition to numerical criteria, "narrative" water quality criteria (WAC 173-201A-030) limit toxic, radioactive, or deleterious material concentrations below those which have the potential to adversely affect characteristic water uses, cause acute or chronic toxicity to biota, impair aesthetic values, or adversely affect human health. Narrative criteria protect the specific beneficial uses of all fresh (WAC 173-201A-130) and marine (WAC 173-201A-140) waters in the state of Washington.

#### ANTIDEGRADATION

The State of Washington's Antidegradation Policy requires that discharges into a receiving water shall not further degrade the existing water quality of the water body. In cases where the natural conditions of a receiving water are of lower quality than the criteria assigned, the natural conditions shall constitute the water quality criteria. Similarly, when receiving waters are of higher quality than the criteria assigned, the existing water quality shall be protected. More information on the State Antidegradation Policy can be obtained by referring to WAC 173-201A-070.

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The Department has reviewed existing records and is unable to determine if ambient water quality is either higher or lower than the designated classification criteria given in Chapter 173-201A WAC; therefore, the Department will use the designated classification criteria for this water body in the proposed permit. The discharges authorized by this proposed permit should not cause a loss of beneficial uses.

#### CRITICAL CONDITIONS

Surface water quality-based limits are derived for the waterbody's critical condition, which represents the receiving water and waste discharge condition with the highest potential for adverse impact on the aquatic biota, human health, and existing or characteristic waterbody uses.

#### MIXING ZONES

The water quality standards allow the Department of Ecology to authorize mixing zones around a point of discharge in establishing surface water quality-based effluent limits. Both "acute" and "chronic" mixing zones may be authorized for pollutants that can have a toxic effect on the aquatic environment near the point of discharge. The concentration of pollutants at the boundary of these mixing zones may not exceed the numerical criteria for that type of zone. Mixing zones can only be authorized for discharges that are receiving all known, available and reasonable methods of prevention, control and treatment (AKART) and in accordance with other mixing zone requirements of WAC 173-201A-100.

The National Toxics Rule (EPA, 1992) allows the chronic mixing zone to be used to meet human health criteria.

#### DESCRIPTION OF THE RECEIVING WATER

The facility discharges to Puget Sound East Passage which is designated as a Class AA (Extraordinary) receiving water in the vicinity of the outfall. Other nearby point source outfalls include two Southwest Suburban wastewater treatment facilities, Miller Creek WWTP and Salmon Creek WWTP and two Lakehaven Utility District wastewater treatment facilities, Redondo WWTP and Lakota WWTP. Characteristic uses include the following:

Class AA (Extraordinary) water supply (domestic, industrial, agricultural); stock watering; fish migration; fish and shellfish rearing, spawning and harvesting; wildlife habitat; primary contact recreation; sport fishing; boating and aesthetic enjoyment; commerce and navigation.

Water quality of this class shall markedly and uniformly exceed the requirements for all or substantially all uses.

Water quality of this class shall meet or exceed the requirements of selected and essential uses.

#### SURFACE WATER QUALITY CRITERIA

Applicable criteria are defined in Chapter 173-201A WAC for aquatic biota. In addition, U.S. EPA has promulgated human health criteria for toxic pollutants (EPA 1992). Criteria for this discharge are summarized below:

Pollutant	Water Quality Criteria
Fecal Coliforms	14 organisms/100 mL maximum geometric mean
Dissolved Oxygen	7 mg/L minimum
Temperature	13 degrees Celsius maximum or incremental increases above background
pH	7 to 8.5 standard units
Turbidity	less than 5 NTUs above background
Toxics	No toxics in toxic amounts (see Appendix C for numeric criteria for toxics of concern for this discharge)

#### CONSIDERATION OF SURFACE WATER QUALITY-BASED LIMITS FOR NUMERIC CRITERIA

Pollutant concentrations in the proposed discharge exceed water quality criteria with technology-based controls which the Department has determined to be AKART. A mixing zone is authorized in accordance with the geometric configuration, flow restriction, and other restrictions for mixing zones in Chapter 173-201A WAC and are defined as follows:

The dilution factors of effluent to receiving water that occur within these zones have been determined at the critical condition by the use modeling with Plumes computer program<sup>3</sup>.

	Acute	Chronic
Aquatic Life	49:1	961:1
Human Health, Carcinogen		961:1
Human Health, Non-carcinogen		961:1

Pollutants in an effluent may affect the aquatic environment near the point of discharge (near-field) or at a considerable distance from the point of discharge (far-field). Toxic pollutants, for example, are near-field pollutants—their adverse effects diminish rapidly with mixing in the receiving water. Conversely, a pollutant such as BOD is a far-field pollutant whose adverse effect occurs away from the discharge even after dilution has occurred. Thus, the method of calculating water quality-based effluent limits varies with the point at which the pollutant has its maximum effect.

The derivation of water quality-based limits also takes into account the variability of the pollutant concentrations in both the effluent and the receiving water.

**BOD<sub>5</sub>**—This discharge with technology-based limitations results in a small amount of BOD loading relative to the large amount of dilution occurring in the receiving water at critical conditions. Technology-based limitations will be protective of dissolved oxygen criteria in the receiving water.

<sup>3</sup> URS Consultants, Inc., Evaluation of Wastewater Facilities Capacity, Midway Sewer District, November 1996.

Temperature—The impact of the discharge on the temperature of the receiving water was modeled by simple mixing analysis at critical condition. The receiving water temperature at the critical condition is 10.5° C and the effluent temperature is 15° C. The predicted resultant temperature at the boundary of the chronic mixing zone is 10.5° C and the incremental rise is 0.005° C.

Under critical conditions, there is no predicted violation of the water quality standards for surface waters. Therefore, no effluent limitation for temperature was placed in the proposed permit.

pH—Because of the high buffering capacity of marine water, compliance with the technology-based limits of 6.0 to 9.0 will assure compliance with the water quality standards for surface waters.

Fecal Coliform—The numbers of fecal coliform were modeled by simple mixing analysis using the technology-based limit of 400 organisms per 100 ml and a dilution factor of 961.

Under critical conditions, there is no predicted violation of the water quality standards for surface waters with the technology-based limit. Therefore, the technology-based effluent limitation for fecal coliform bacteria was placed in the proposed permit.

Toxic Pollutants—Federal regulations (40 CFR 122.44) require NPDES permits to contain effluent limits for toxic chemicals in an effluent whenever there is a reasonable potential for those chemicals to exceed the surface water quality criteria. This process occurs concurrently with the derivation of technology-based effluent limits. Facilities with technology-based effluent limits defined in regulation are not exempted from meeting the water quality standards for surface waters or from having surface water quality-based effluent limits.

The following toxics were determined to be present in detectable levels in the discharge: ARSENIC, BIS(2-ETHYLHEXYL) PHTHALATE, COPPER, LEAD, NICKEL, SELENIUM, and ZINC.

A reasonable potential analysis (See Appendix D) was conducted on these parameters to determine whether or not effluent limitations would be required in this permit.

The determination of the reasonable potential for the above toxic chemicals to exceed the water quality criteria was evaluated with procedures given in EPA, 1991 (Appendix D) at the critical condition.

No valid ambient background data was available for any of the pollutants. A determination of reasonable potential using zero for background resulted in no reasonable potential.

Water quality criteria for metals in Chapter 173-201A WAC are based on the dissolved fraction of the metal.

The Permittee may provide data clearly demonstrating the seasonal partitioning of the dissolved metal in the ambient water in relation to an effluent discharge. Metals criteria may be adjusted on a site-specific basis when data is available clearly demonstrating the seasonal partitioning in the ambient water in relation to an effluent discharge.

Metals criteria may also be adjusted using the water effects ratio approach established by USEPA, as generally guided by the procedures in USEPA Water Quality Standards Handbook, December 1983, as supplemented or replaced.

Sodium Hypochlorite (a source of chlorine) may be used to disinfect the effluent. The following chlorine limits apply when Sodium Hypochlorite is in use. Effluent limits were derived for Chlorine<sup>4</sup>, which were determined to have a reasonable potential to cause a violation of the water quality standards. Effluent limits were calculated using methods from EPA, 1991, as shown in Appendix D.

The resultant effluent limits are as follows:

	Limit	Units
Average Monthly Limit (AML)	0.32	mg/L
Maximum Daily Limit (MDL)	0.64	mg/L

#### WHOLE EFFLUENT TOXICITY

The water quality standards for surface waters require that the effluent not cause toxic effects in the receiving waters. Many toxic pollutants cannot be detected by commonly available detection methods. However, toxicity can be measured directly by exposing living organisms to the waste water in laboratory tests and measuring the response of the organisms. Toxicity tests measure the aggregate toxicity of the whole effluent, and therefore this approach is called whole effluent toxicity (WET) testing. Some WET tests measure acute toxicity and other WET tests measure chronic toxicity.

Acute toxicity tests measure mortality as the significant response to the toxicity of the effluent. Dischargers who monitor their waste water with acute toxicity tests are providing an indication of the potential lethal effect of the effluent to organisms in the receiving environment.

Chronic toxicity tests measure various sublethal toxic responses such as retarded growth or reduced reproduction. Chronic toxicity tests often involve either a complete life cycle test of an organism with an extremely short life cycle or a partial life cycle test on a critical stage of one of a test organism's life cycles. Organism survival is also measured in some chronic toxicity tests.

Accredited WET testing laboratories have the proper WET testing protocols, data requirements, and reporting format. Accredited laboratories are knowledgeable about WET testing and capable of calculating an NOEC, LC<sub>50</sub>, EC<sub>50</sub>, IC<sub>25</sub>, etc. All accredited labs have been provided the most recent version of the Department of Ecology Publication # WQ-R-95-80, *Laboratory Guidance and Whole Effluent Toxicity Test Review Criteria*, which is referenced in the permit. Any Permittee interested in receiving a copy of this publication may call the Ecology Publications Distribution Center at 360-407-7472 for a copy. Ecology recommends that Permittees send a copy of the acute or chronic toxicity sections(s) of their permits to their laboratory of choice.

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<sup>4</sup> Sodium Hypochlorite is used for disinfection at high flows when the UV system can not be used.

The WET tests during effluent characterization indicate that no reasonable potential exists to cause receiving water acute toxicity, and the Permittee will not be given an acute WET limit and will only be required to retest the effluent during the permit cycle in order to demonstrate that acute toxicity has not increased in the effluent.

The WET tests during effluent characterization indicate that no reasonable potential exists to cause receiving water chronic toxicity, and the Permittee will not be given a chronic WET limit and will only be required to retest the effluent during the permit cycle in order to demonstrate that chronic toxicity has not increased in the effluent.

If the Permittee makes process or material changes which, in the Department's opinion, results in an increased potential for effluent toxicity, then the Department may require additional effluent characterization in a regulatory order, by permit modification, or in the permit renewal. Toxicity is assumed to have increased if WET testing conducted for submission with a permit application fails to meet the performance standards in WAC 173-205-020, "whole effluent toxicity performance standard." The Permittee may demonstrate to the Department that changes have not increased effluent toxicity by performing additional WET testing after the time the process or material changes have been made.

#### HUMAN HEALTH

Washington's water quality standards now include 91 numeric health-based criteria that must be considered in NPDES permits. These criteria were promulgated for the state by the U.S. EPA in its National Toxics Rule (Federal Register, Volume 57, No. 246, Tuesday, December 22, 1992).

The Department has determined that the effluent is likely to have chemicals of concern for human health. The discharger's high priority status is based on the discharger's status as a major discharger and knowledge of data or process information indicating regulated chemicals occur in the discharge.

A determination of the discharge's potential to cause an exceedance of the water quality standards was conducted as required by 40 CFR 122.44(d). The reasonable potential determination was evaluated with procedures given in the *Technical Support Document for Water Quality-based Toxics Control* (EPA/505/2-90-001) and the Department's *Permit Writer's Manual* (Ecology Publication 92-109, July 1994). Refer to Appendix C. The following pollutants were measured at detectible levels in the effluent and have water quality standards for the protection of human health: BIS(2-ETHYLHEXYL) PHTHALATE, NICKEL and SELENIUM.

The determination indicated that the discharge has no reasonable potential to cause a violation of water quality standards, thus an effluent limit is not warranted.

#### SEDIMENT QUALITY

The Department has promulgated aquatic sediment standards (Chapter 173-204 WAC) to protect aquatic biota and human health. These standards state that the Department may require Permittees to evaluate the potential for the discharge to cause a violation of applicable standards (WAC 173-204-400).

The Department has determined that this discharge has the potential to cause a violation of the sediment quality standards because of discharger's status as a major discharger and knowledge of data or process information indicating regulated chemicals occur in the discharge. A condition has been placed in the proposed permit which requires the Permittee to demonstrate that either the point of discharge is not an area of deposition or, if the point of discharge is a depositional area, that there is not an accumulation of toxics in the sediments.

In accordance with its previous permit, the Permittee submitted a Sediment Data Report detailing a 1995 baseline sediment study on September 26, 1996. The Department's Sediment Management Unit (SMU) reviewed the final report and found it satisfactory, but because contaminants were detected in the study, additional sediment monitoring was required near the end of the permit cycle.

A 2000 supplemental sediment baseline study was performed without prior SMU approval. The 2000 study analyzed a limited number of chemicals in response to detection limit issues raised from the 1995 study. The collected sediment should have been analyzed for all 47 *Sediment Management Standards* (Chapter 173-204 WAC) chemicals. Because the 2000 sampling effort was incomplete, sediments in the vicinity of the existing outfall will be evaluated for sediment impacts during this permit cycle. Also, sediments in the vicinity of a proposed new outfall will be evaluated for baseline sediment quality before the beginning of construction during this permit cycle.

#### **GROUND WATER QUALITY LIMITATIONS**

The Department has promulgated ground water quality standards (Chapter 173-200 WAC) to protect uses of ground water. Permits issued by the Department shall be conditioned in such a manner so as not to allow violations of those standards (WAC 173-200-100).

This Permittee has no discharge to ground and therefore no limitations are required based on potential effects to ground water.

#### **COMPARISON OF EFFLUENT LIMITS WITH THE EXISTING PERMIT ISSUED DECEMBER 1, 2000, AND MODIFIED MAY 17, 2004**

<b>Parameter</b>	<b>Existing Permit Limits</b>		<b>Proposed Permit Limits</b>	
	<b>Monthly Average</b>	<b>Weekly Average</b>	<b>Monthly Average</b>	<b>Weekly Average</b>
Biochemical Oxygen Demand	30 mg/L 2,250 lb/day	45 mg/L 3,380 lb/day	30 mg/L 2,250 lb/day	45 mg/L 3,380 lb/day
Total Suspended Solids	30 mg/L 2,250 lb/day	45 mg/L 3,380 lb/day	30 mg/L 2,250 lb/day	45 mg/L 3,380 lb/day
Fecal Coliform Bacteria	200/100 mL	400/100 mL	200/100 mL	400/100 mL
pH	Daily minimum is equal to or greater than 6 and the daily maximum is less than or equal to 9.		Daily minimum is equal to or greater than 6.0 and the daily maximum is less than or equal to 9.0.	
<b>Parameter</b>	<b>Average Monthly</b>	<b>Maximum Daily</b>	<b>Average Monthly</b>	<b>Maximum Daily</b>
Total Residual Chlorine	None	None	<b>0.32 mg/L</b>	<b>0.64 mg/L</b>

## **MONITORING REQUIREMENTS**

Monitoring, recording, and reporting are required (WAC 173-220-210 and 40 CFR 122.41) to verify that the treatment process is functioning correctly and the effluent limitations are being achieved.

Monitoring of sludge quantity and quality is necessary to determine the appropriate uses of the sludge. Sludge monitoring is required by the current state and local solid waste management program and also by EPA under 40 CFR 503.

The monitoring schedule is detailed in the proposed permit under Condition S.2. Specified monitoring frequencies take into account the quantity and variability of discharge, the treatment method, past compliance, significance of pollutants, and cost of monitoring. The required monitoring frequency is consistent with agency guidance given in the current version of Ecology's *Permit Writer's Manual* (July 2002) for trickling filter plant with over 2.0 MGD average design flow.

Additional monitoring is required in order to further characterize the effluent. These monitored pollutants could have a significant impact on the quality of the surface water. All parameter which must be reported in the application for permit renewal must be monitoring as required by the application.

### **LAB ACCREDITATION**

With the exception of certain parameters, the permit requires all monitoring data to be prepared by a laboratory registered or accredited under the provisions of Chapter 173-50 WAC, *Accreditation of Environmental Laboratories*. The laboratory at this facility is accredited for all parameter which have limits in this permit.

## **OTHER PERMIT CONDITIONS**

### **REPORTING AND RECORDKEEPING**

The conditions of S3 are based on the authority to specify any appropriate reporting and recordkeeping requirements to prevent and control waste discharges (WAC 173-220-210).

### **PREVENTION OF FACILITY OVERLOADING**

Overloading of the treatment plant is a violation of the terms and conditions of the permit. To prevent this from occurring, RCW 90.48.110 and WAC 173-220-150 require the Permittee to take the actions detailed in proposed permit requirement S.4 to plan expansions or modifications before existing capacity is reached and to report and correct conditions that could result in new or increased discharges of pollutants. Condition S.4 restricts the amount of flow.

### **OPERATION AND MAINTENANCE (O&M)**

The proposed permit contains Condition S.5 as authorized under RCW 90.48.110, WAC 173-220-150, Chapter 173-230 WAC, and WAC 173-240-080. It is included to ensure proper operation and regular maintenance of equipment, and to ensure that adequate safeguards are taken so that constructed facilities are used to their optimum potential in terms of pollutant capture and treatment.

FACILITY NAME: Midway Sewer District – Des Moines Creek Wastewater Treatment Plant

### *RESIDUAL SOLIDS HANDLING*

To prevent water quality problems, the Permittee is required in permit Condition S7 to store and handle all residual solids (grit, screenings, scum, sludge, and other solid waste) in accordance with the requirements of RCW 90.48.080 and state water quality standards.

The final use and disposal of sewage sludge from this facility is regulated by U.S. EPA under 40 CFR 503, and by Ecology under Chapter 70.95J RCW and Chapter 173-308 WAC. The disposal of other solid waste is under the jurisdiction of the King County Health Department.

Requirements for monitoring sewage sludge and recordkeeping are included in this permit. This information will be used by Ecology to develop or update local limits and is also required under 40 CFR 503.

### *PRETREATMENT*

An Industrial User Survey may be required to determine the extent of compliance of all industrial users of the sanitary sewer and wastewater treatment facility with federal pretreatment regulations (40 CFR Part 403 and Sections 307(b) and 308 of the Clean Water Act), with state regulations (Chapter 90.48 RCW and Chapter 173-216 WAC), and with local ordinances.

#### FEDERAL AND STATE PRETREATMENT PROGRAM REQUIREMENTS

Under the terms of the addendum to the “Memorandum of Understanding between Washington Department of Ecology and the United States Environmental Protection Agency, Region 10” (1986), the Department of Ecology (Department) has been delegated authority to administer the Pretreatment Program (i.e. act as the Approval Authority for oversight of delegated Publicly Owned Treatment Works (POTWs)). Under this delegation of authority, the Department has exercised the option of issuing wastewater discharge permits for significant industrial users discharging to POTWs which have not been delegated authority to issue wastewater discharge permits.

There are a number of functions required by the Pretreatment Program which the Department is delegating to such POTWs because they are in a better position to implement the requirements (e.g. tracking the number and general nature of industrial dischargers to the sewerage system). The requirements for a Pretreatment Program are contained in Title 40, Part 403 of the Code of Federal Regulations. Under the requirements of the Pretreatment Program (40 CFR 403.8(f)(1)(iii)), the Department is required to approve, condition, or deny new discharges or a significant increase in the discharge for existing significant industrial users (SIUs) (40 CFR 403.8 (f)(1)(i)).

The Department is responsible for issuing state waste discharge permits to SIUs and other industrial users of the Permittee's sewer system. Industrial dischargers must obtain these permits from the Department prior to the Permittee accepting the discharge (WAC 173-216-110(5)) (Industries discharging wastewater that is similar in character to domestic wastewater are not required to obtain a permit. Such dischargers should contact the Department to determine if a permit is required.). Industrial dischargers need to apply for a state waste discharge permit sixty (60) days prior to commencing discharge. The conditions contained in the permits will include any applicable conditions for categorical discharges, loading limitations included in contracts with the POTW, and other conditions necessary to assure compliance with state water quality standards and biosolids standards.

The Department requires this POTW to fulfill some of the functions required for the Pretreatment Program in the NPDES permit (e.g. tracking the number and general nature of industrial dischargers to the sewage system). The POTW's NPDES permit will require that all SIUs currently discharging to the POTW be identified and notified of the requirement to apply for a wastewater discharge permit from the Department. None of the obligations imposed on the POTW relieve an industrial or commercial discharger of its primary responsibility for obtaining a wastewater discharge permit (if required), including submittal of engineering reports prior to construction or modification of facilities (40 CFR 403.12(j) and WAC 173-216-070 and WAC 173-240-110, et seq.).

#### WASTEWATER PERMIT REQUIRED

RCW 90.48 and WAC 173-216-040 require SIUs to obtain a permit prior to discharge of industrial waste to the Permittee's sewerage system. This provision prohibits the POTW from accepting industrial wastewater from any such dischargers without authorization from the Department.

#### REQUIREMENTS FOR ROUTINE IDENTIFICATION AND REPORTING OF INDUSTRIAL USERS

The NPDES permit requires nondelegated POTWs to "take continuous, routine measures to identify all existing, new, and proposed SIUs and potential significant industrial users (PSIUs) discharging to the Permittee's sewerage system." Examples of such routine measures include regular review of business tax licenses for existing businesses and review of water billing records and existing connection authorization records. System maintenance personnel can also be diligent during performance of their jobs in identifying and reporting as-yet unidentified industrial dischargers. Local newspapers, telephone directories, and word-of-mouth can also be important sources of information regarding new or existing discharges. The POTW is required to notify an industrial discharger, in writing, of their responsibilities regarding application for a state waste discharge permit and to send a copy of the written notification to the Department. The Department will then take steps to solicit a state waste discharge permit application.

#### REQUIREMENTS FOR PERFORMING AN INDUSTRIAL USER SURVEY

This POTW has the potential to serve significant industrial or commercial users and is required to perform an Industrial User Survey. The goal of this survey is to develop a list of SIUs and PSIUs, and of equal importance, to provide sufficient information about industries which discharge to the POTW, to determine which of them require issuance of state waste discharge permits or other regulatory controls. An Industrial User Survey is an important part of the regulatory process used to prevent interference with treatment processes at the POTW and to prevent the exceedance of water quality standards. The Industrial User Survey also can be used to contribute to the maintenance of sludge quality, so that sludge can be a useful biosolids product rather than an expensive waste problem. An Industrial User Survey is a rigorous method for identifying existing, new, and proposed significant industrial users and potential significant industrial users. A complete listing of methodologies is available in the Department of Ecology guidance document entitled "Conducting an Industrial User Survey."

#### DUTY TO ENFORCE DISCHARGE PROHIBITIONS

This provision prohibits the POTW from authorizing or permitting an industrial discharger to discharge certain types of waste into the sanitary sewer. The first portion of the provision prohibits acceptance of pollutants which cause pass through or interference. The definitions of pass through and interference are in Appendix B of the fact sheet.

The second portion of this provision prohibits the POTW from accepting certain specific types of wastes, namely those which are explosive, flammable, excessively acidic, basic, otherwise corrosive, or obstructive to the system. In addition, wastes with excessive BOD, petroleum-based oils, or which result in toxic gases are prohibited to be discharged. The regulatory basis for these prohibitions is 40 CFR Part 403, with the exception of the pH provisions which are based on WAC 173-216-060.

The third portion of this provision prohibits certain types of discharges unless the POTW receives prior authorization from the Department. The discharges include cooling water in significant volumes, stormwater and other direct inflow sources, and wastewaters significantly affecting system hydraulic loading, which do not require treatment.

#### SUPPORT BY THE DEPARTMENT FOR DEVELOPING PARTIAL PRETREATMENT PROGRAM BY POTW

The Department has committed to providing technical and legal assistance to the Permittee in fulfilling these joint obligations, in particular, assistance with developing an adequate sewer use ordinance, notification procedures, enforcement guidelines, and developing local limits and inspection procedures.

#### *EFFLUENT MIXING STUDY*

The consultant has estimated the amount of mixing of the discharge within the authorized mixing zone to determine the potential for violations of the water quality standards for surface waters (Chapter 173-201A WAC). The dilution achieved with the existing outfall was used as the basis for this permit.

Condition S.8 of this permit requires the Permittee to accurately determine the mixing characteristics of the discharge with the new proposed outfall. Mixing must be modeled under conditions specified in the permit and the design of the new outfall to assess whether assumptions made about dilution will protect the receiving water quality outside the allotted dilution zone boundary.

#### *SEDIMENT MONITORING*

Proposed permit Condition S.12 requires the Permittee to conduct sediment monitoring in the vicinity of the existing outfall and in the vicinity of the new outfall. The sampling must be conducted in accordance with the Sediment Sampling Plan that has been approved by Ecology's Sediment Management Unit (SMU). A report of the results must be submitted to the SMU to be evaluated and entered into the SEDQUAL database as required by the permit.

FACILITY NAME: Midway Sewer District – Des Moines Creek Wastewater Treatment Plant

### *OUTFALL EVALUATION*

Proposed permit Condition S.13 requires the Permittee to conduct an outfall inspection and submit a report detailing the findings of that inspection. The purpose of the inspection is to determine the condition of the discharge pipe and diffusers and to determine if sediment is accumulating in the vicinity of the outfall.

### *GENERAL CONDITIONS*

General Conditions are based directly on state and federal law and regulations and have been standardized for all individual municipal NPDES permits issued by the Department.

## **PERMIT ISSUANCE PROCEDURES**

### *PERMIT MODIFICATIONS*

The Department may modify this permit to impose numerical limitations, if necessary, to meet water quality standards, sediment quality standards, or ground water standards, based on new information obtained from sources such as inspections, effluent monitoring, outfall studies, and effluent mixing studies.

The Department may also modify this permit as a result of new or amended state or federal regulations.

### *RECOMMENDATION FOR PERMIT ISSUANCE*

This proposed permit meets all statutory requirements for authorizing a wastewater discharge, including those limitations and conditions believed necessary to protect human health, aquatic life, and the beneficial uses of waters of the state of Washington. The Department proposes that this permit be issued for five (5) years.

## REFERENCES FOR TEXT AND APPENDICES

### Midway Documents

2000, Midway Sewer District 2000 Comprehensive Sewer System Plan

1996, Evaluation of Wastewater Facilities Capacity Midway Sewer District

### Environmental Protection Agency (EPA)

1992. National Toxics Rule. Federal Register, V. 57, No. 246, Tuesday, December 22, 1992.

1991. Technical Support Document for Water Quality-based Toxics Control. EPA/505/2-90-001.

1988. Technical Guidance on Supplementary Stream Design Conditions for Steady State Modeling. USEPA Office of Water, Washington, D.C.

1985. Water Quality Assessment: A Screening Procedure for Toxic and Conventional Pollutants in Surface and Ground Water. EPA/600/6-85/002a.

1983. Water Quality Standards Handbook. USEPA Office of Water, Washington, D.C.

### Metcalf and Eddy.

1991. Wastewater Engineering, Treatment, Disposal, and Reuse. Third Edition.

### Tsivoglou, E.C., and J.R. Wallace.

1972. Characterization of Stream Reaeration Capacity. EPA-R3-72-012. (Cited in EPA 1985 op.cit.)

### Washington State Department of Ecology.

Laws and Regulations ( <http://www.ecy.wa.gov/laws-rules/index.html> )

Permit and Wastewater Related Information  
( <http://www.ecy.wa.gov/programs/wq/wastewater/index.html> )

### Washington State Department of Ecology.

2002. Permit Writer's Manual. Publication Number 92-109

### Water Pollution Control Federation.

1976. Chlorination of Wastewater.

### Wright, R.M., and A.J. McDonnell.

1979. In-stream Deoxygenation Rate Prediction. Journal Environmental Engineering Division, ASCE. 105(E2). (Cited in EPA 1985 op.cit.)

**APPENDIX A—PUBLIC INVOLVEMENT INFORMATION**

The Department has tentatively determined to reissue a permit to the applicant listed on page one of this fact sheet. The permit contains conditions and effluent limitations which are described in the rest of this fact sheet.

Public Notice of Application (PNOA) was published on June 21, 2005, and June 28, 2005, in *The Seattle Times* and *Seattle Post-Intelligencer* to inform the public that an application had been submitted and to invite comment on the reissuance of this permit.

The Department published a Public Notice of Draft (PNOD) on October 14, 2005, in *The Seattle Times* and *Seattle Post-Intelligencer* to inform the public that a draft permit and fact sheet were available for review. Interested persons were invited to submit written comments regarding the draft permit. The draft permit, fact sheet, and related documents were available for inspection and copying between the hours of 8:00 a.m. and 5:00 p.m. weekdays, by appointment, at the regional office listed below. Written comments were mailed to:

Water Quality Permit Coordinator  
Department of Ecology  
Northwest Regional Office  
3190 – 160<sup>th</sup> Avenue SE  
Bellevue, WA 98008-5452

Any interested party may comment on the draft permit or request a public hearing on this draft permit within the thirty (30)-day comment period to the address above. The request for a hearing shall indicate the interest of the party and the reasons why the hearing is warranted. The Department will hold a hearing if it determines there is a significant public interest in the draft permit (WAC 173-220-090). Public notice regarding any hearing will be circulated at least thirty (30) days in advance of the hearing. People expressing an interest in this permit will be mailed an individual notice of hearing (WAC 173-220-100).

Comments should reference specific text followed by proposed modification or concern when possible. Comments may address technical issues, accuracy and completeness of information, the scope of the facility's proposed coverage, adequacy of environmental protection, permit conditions, or any other concern that would result from issuance of this permit.

The Department will consider all comments received within thirty (30) days from the date of public notice of draft indicated above, in formulating a final determination to issue, revise, or deny the permit. The Department's response to all significant comments is available upon request and will be mailed directly to people expressing an interest in this permit.

Further information may be obtained from the Department by telephone, 425-649-7201, [tmil461@ecy.wa.gov](mailto:tmil461@ecy.wa.gov), or 425-649-4259 (TDD), or by writing to the address listed above.

This permit and fact sheet were written by Karen Burgess.

## APPENDIX B—GLOSSARY

**Acute Toxicity**—The lethal effect of a pollutant on an organism that occurs within a short period of time, usually 48 to 96 hours.

**AKART**—An acronym for “all known, available, and reasonable methods of prevention, control, and treatment.”

**Ambient Water Quality**—The existing environmental condition of the water in a receiving waterbody.

**Ammonia**—Ammonia is produced by the breakdown of nitrogenous materials in waste water. Ammonia is toxic to aquatic organisms, exerts an oxygen demand, and contributes to eutrophication. It also increases the amount of chlorine needed to disinfect waste water.

**Average Monthly Discharge Limitation**—The highest allowable average of daily discharges over a calendar month, calculated as the sum of all daily discharges measured during a calendar month divided by the number of daily discharges measured during that month (except in the case of fecal coliform). The daily discharge is calculated as the average measurement of the pollutant over the day.

**Average Weekly Discharge Limitation**—The highest allowable average of daily discharges over a calendar week, calculated as the sum of all daily discharges measured during a calendar week divided by the number of daily discharges measured during that week. The daily discharge is calculated as the average measurement of the pollutant over the day.

**Best Management Practices (BMPs)** —Schedules of activities, prohibitions of practices, maintenance procedures, and other physical, structural and/or managerial practices to prevent or reduce the pollution of waters of the state. BMPs include treatment systems, operating procedures, and practices to control: plant site runoff, spillage or leaks, sludge or waste disposal, or drainage from raw material storage. BMPs may be further categorized as operational, source control, erosion and sediment control, and treatment BMPs.

**BOD<sub>5</sub>**—Determining the Biochemical Oxygen Demand of an effluent is an indirect way of measuring the quantity of organic material present in an effluent that is utilized by bacteria. The BOD<sub>5</sub> is used in modeling to measure the reduction of dissolved oxygen in a receiving water after effluent is discharged. Stress caused by reduced dissolved oxygen levels makes organisms less competitive and less able to sustain their species in the aquatic environment. Although BOD is not a specific compound, it is defined as a conventional pollutant under the federal Clean Water Act.

**Bypass**—The intentional diversion of waste streams from any portion of a treatment facility.

**CBOD<sub>5</sub>**—The quantity of oxygen utilized by a mixed population of microorganisms acting on the nutrients in the sample in an aerobic oxidation for five days at a controlled temperature of 20 degrees Celsius, with an inhibitory agent added to prevent the oxidation of nitrogen compounds. The method for determining CBOD<sub>5</sub> is given in 40 CFR Part 136.

**Chlorine**—Chlorine is used to disinfect waste waters of pathogens harmful to human health. It is also extremely toxic to aquatic life.

**Chronic Toxicity**—The effect of a pollutant on an organism over a relatively long time, often 1/10 of an organism's lifespan or more. Chronic toxicity can measure survival, reproduction or growth rates, or other parameters to measure the toxic effects of a compound or combination of compounds.

**Clean Water Act (CWA)**—The Federal Water Pollution Control Act enacted by Public Law 92-500, as amended by Public Laws 95-217, 95-576, 96-483, 97-117; USC 1251 et seq.

**Combined Sewer Overflow (CSO)**—The event during which excess combined sewage flow caused by inflow is discharged from a combined sewer, rather than conveyed to the sewage treatment plant because either the capacity of the treatment plant or the combined sewer is exceeded.

**Compliance Inspection - Without Sampling**—A site visit for the purpose of determining the compliance of a facility with the terms and conditions of its permit or with applicable statutes and regulations.

**Compliance Inspection - With Sampling**—A site visit to accomplish the purpose of a Compliance Inspection - Without Sampling and as a minimum, sampling and analysis for all parameters with limits in the permit to ascertain compliance with those limits; and, for municipal facilities, sampling of influent to ascertain compliance with the percent removal requirement. Additional sampling may be conducted.

**Composite Sample**—A mixture of grab samples collected at the same sampling point at different times, formed either by continuous sampling or by mixing a minimum of four discrete samples. May be "time-composite" (collected at constant time intervals) or "flow-proportional" (collected either as a constant sample volume at time intervals proportional to stream flow, or collected by increasing the volume of each aliquot as the flow increased while maintaining a constant time interval between the aliquots).

**Construction Activity**—Clearing, grading, excavation, and any other activity which disturbs the surface of the land. Such activities may include road building; construction of residential houses, office buildings, or industrial buildings; and demolition activity.

**Continuous Monitoring**—Uninterrupted, unless otherwise noted in the permit.

**Critical Condition**—The time during which the combination of receiving water and waste discharge conditions have the highest potential for causing toxicity in the receiving water environment. This situation usually occurs when the flow within a water body is low, thus, its ability to dilute effluent is reduced.

**Dilution Factor**—A measure of the amount of mixing of effluent and receiving water that occurs at the boundary of the mixing zone. Expressed as the inverse of the effluent fraction e.g., a dilution factor of 10 means the effluent comprises 10% by volume and the receiving water 90%.

**Engineering Report**—A document which thoroughly examines the engineering and administrative aspects of a particular domestic or industrial wastewater facility. The report shall contain the appropriate information required in WAC 173-240-060 or 173-240-130.

**Fecal Coliform Bacteria**—Fecal coliform bacteria are used as indicators of pathogenic bacteria in the effluent that are harmful to humans. Pathogenic bacteria in wastewater discharges are controlled by disinfecting the waste water. The presence of high numbers of fecal coliform bacteria in a water body can indicate the recent release of untreated wastewater and/or the presence of animal feces.

**Grab Sample**—A single sample or measurement taken at a specific time or over as short a period of time as is feasible.

**Industrial User**—A discharger of waste water to the sanitary sewer which is not sanitary wastewater or is not equivalent to sanitary wastewater in character.

**Industrial Wastewater**—Water or liquid-carried waste from industrial or commercial processes, as distinct from domestic wastewater. These wastes may result from any process or activity of industry, manufacture, trade or business; from the development of any natural resource; or from animal operations such as feed lots, poultry houses, or dairies. The term includes contaminated storm water and, also, leachate from solid waste facilities.

**Infiltration and Inflow (I/I)** —"Infiltration" means the addition of ground water into a sewer through joints, the sewer pipe material, cracks, and other defects. "Inflow" means the addition of precipitation-caused drainage from roof drains, yard drains, basement drains, street catch basins, etc., into a sewer.

**Interference**—A discharge which, alone or in conjunction with a discharge or discharges from other sources, both:

Inhibits or disrupts the POTW, its treatment processes or operations, or its sludge processes, use or disposal; and

Therefore is a cause of a violation of any requirement of the POTW's NPDES permit (including an increase in the magnitude or duration of a violation) or of the prevention of sewage sludge use or disposal in compliance with the following statutory provisions and regulations or permits issued thereunder (or more stringent state or local regulations): Section 405 of the Clean Water Act, the Solid Waste Disposal Act (SWDA) (including Title II, more commonly referred to as the Resource Conservation and Recovery Act (RCRA), and including state regulations contained in any state sludge management plan prepared pursuant to Subtitle D of the SWDA), sludge regulations appearing in 40 CFR Part 507, the Clean Air Act, the Toxic Substances Control Act, and the Marine Protection, Research and Sanctuaries Act.

**Major Facility**—A facility discharging to surface water with an EPA rating score of > 80 points based on such factors as flow volume, toxic pollutant potential, and public health impact.

**Maximum Daily Discharge Limitation**—The highest allowable daily discharge of a pollutant measured during a calendar day or any 24-hour period that reasonably represents the calendar day for purposes of sampling. The daily discharge is calculated as the average measurement of the pollutant over the day.

**Method Detection Level (MDL)**—The minimum concentration of a substance that can be measured and reported with 99% confidence that the analyte concentration is above zero and is determined from analysis of a sample in a given matrix containing the analyte.

**Minor Facility**—A facility discharging to surface water with an EPA rating score of < 80 points based on such factors as flow volume, toxic pollutant potential, and public health impact.

**Mixing Zone**—A volume that surrounds an effluent discharge within which water quality criteria may be exceeded. The area of the authorized mixing zone is specified in a facility's permit and follows procedures outlined in state regulations (Chapter 173-201A WAC).

**National Pollutant Discharge Elimination System (NPDES)**—The NPDES (Section 402 of the Clean Water Act) is the federal wastewater permitting system for discharges to navigable waters of the United States. Many states, including the state of Washington, have been delegated the authority to issue these permits. NPDES permits issued by Washington State permit writers are joint NPDES/State permits issued under both state and federal laws.

**Pass Through**—A discharge which exits the POTW into waters of the state in quantities or concentrations which, alone or in conjunction with a discharge or discharges from other sources, is a cause of a violation of any requirement of the POTW's NPDES permit (including an increase in the magnitude or duration of a violation), or which is a cause of a violation of state water quality standards.

**pH**—The pH of a liquid measures its acidity or alkalinity. A pH of 7 is defined as neutral, and large variations above or below this value are considered harmful to most aquatic life.

**Potential Significant Industrial User**—A potential significant industrial user is defined as an Industrial User which does not meet the criteria for a Significant Industrial User, but which discharges waste water meeting one or more of the following criteria:

- a. Exceeds 0.5 % of treatment plant design capacity criteria and discharges <25,000 gallons per day; or
- b. Is a member of a group of similar industrial users which, taken together, have the potential to cause pass through or interference at the POTW (e.g. facilities which develop photographic film or paper, and car washes).

The Department may determine that a discharger initially classified as a potential significant industrial user should be managed as a significant industrial user.

**Quantitation Level (QL)**—A calculated value five times the MDL (method detection level).

**Significant Industrial User (SIU)**—

- 1) All industrial users subject to Categorical Pretreatment Standards under 40 CFR 403.6 and 40 CFR Chapter I, Subchapter N; and
- 2) Any other industrial user that: discharges an average of 25,000 gallons per day or more of process wastewater to the POTW (excluding sanitary, noncontact cooling, and boiler blow-down wastewater); contributes a process wastestream that makes up 5 percent or more of the average dry weather hydraulic or organic capacity of the POTW treatment plant; or is designated as such by the Control Authority\* on the basis that the industrial user has a reasonable potential for adversely affecting the POTW's operation or for violating any pretreatment standard or requirement (in accordance with 40 CFR 403.8(f)(6)).

Upon finding that the industrial user meeting the criteria in paragraph 2, above, has no reasonable potential for adversely affecting the POTW's operation or for violating any pretreatment standard or requirement, the Control Authority\* may at any time, on its own initiative or in response to a petition received from an industrial user or POTW, and in accordance with 40 CFR 403.8(f)(6), determine that such industrial user is not a significant industrial user.

\*The term "Control Authority" refers to the Washington State Department of Ecology in the case of non-delegated POTWs or to the POTW in the case of delegated POTWs.

**State Waters**—Lakes, rivers, ponds, streams, inland waters, underground waters, salt waters, wetlands, and all other surface waters and watercourses within the jurisdiction of the state of Washington.

**Stormwater**—That portion of precipitation that does not naturally percolate into the ground or evaporate, but flows via overland flow, interflow, pipes, and other features of a storm water drainage system into a defined surface water body, or a constructed infiltration facility.

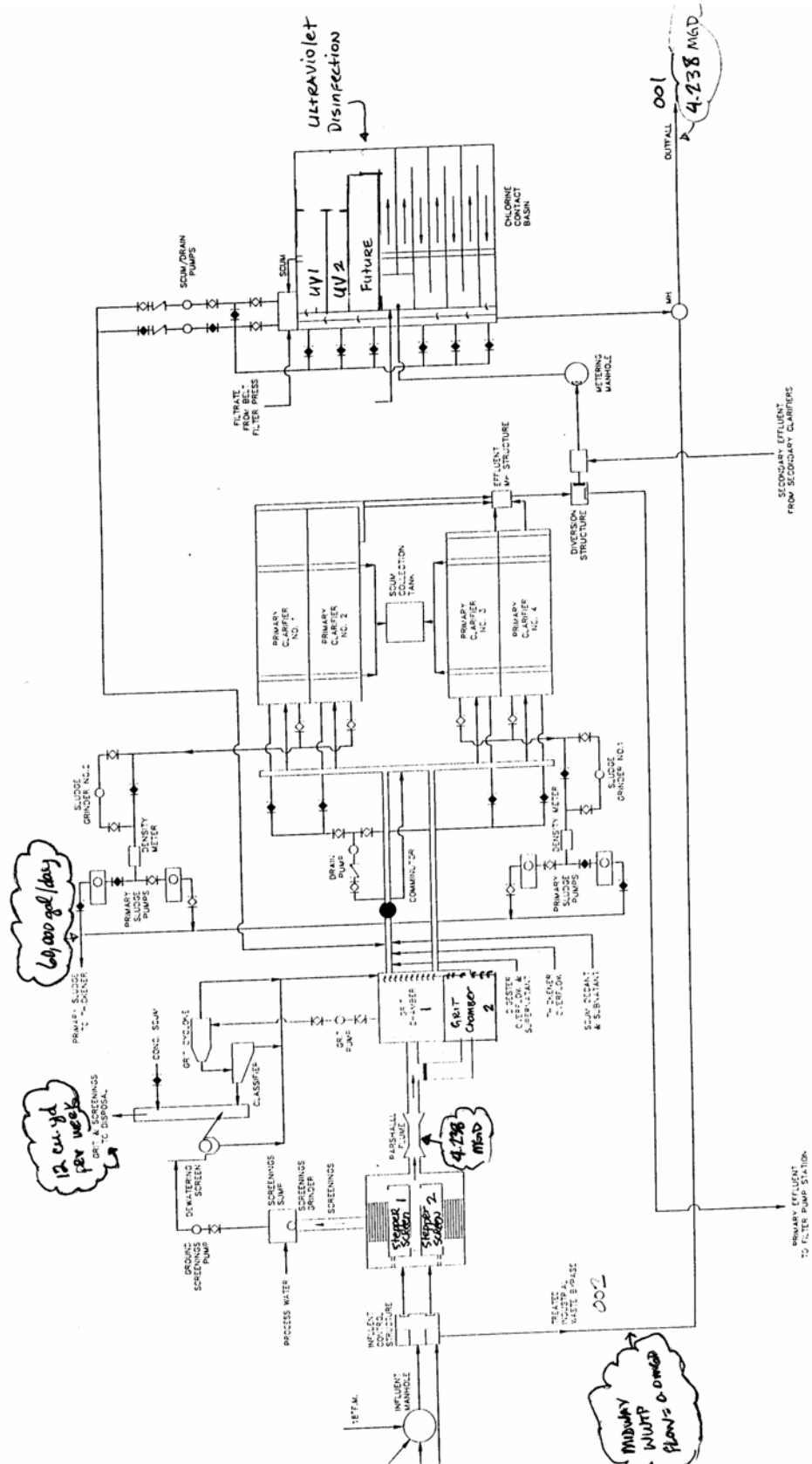
**Technology-based Effluent Limit**—A permit limit that is based on the ability of a treatment method to reduce the pollutant.

**Total Suspended Solids (TSS)**—Total suspended solids are the particulate materials in an effluent. Large quantities of TSS discharged to a receiving water may result in solids accumulation. Apart from any toxic effects attributable to substances leached out by water, suspended solids may kill fish, shellfish, and other aquatic organisms by causing abrasive injuries and by clogging the gills and respiratory passages of various aquatic fauna. Indirectly, suspended solids can screen out light and can promote and maintain the development of noxious conditions through oxygen depletion.

**Upset**—An exceptional incident in which there is unintentional and temporary noncompliance with technology-based permit effluent limitations because of factors beyond the reasonable control of the Permittee. An upset does not include noncompliance to the extent caused by operational error, improperly designed treatment facilities, lack of preventative maintenance, or careless or improper operation.

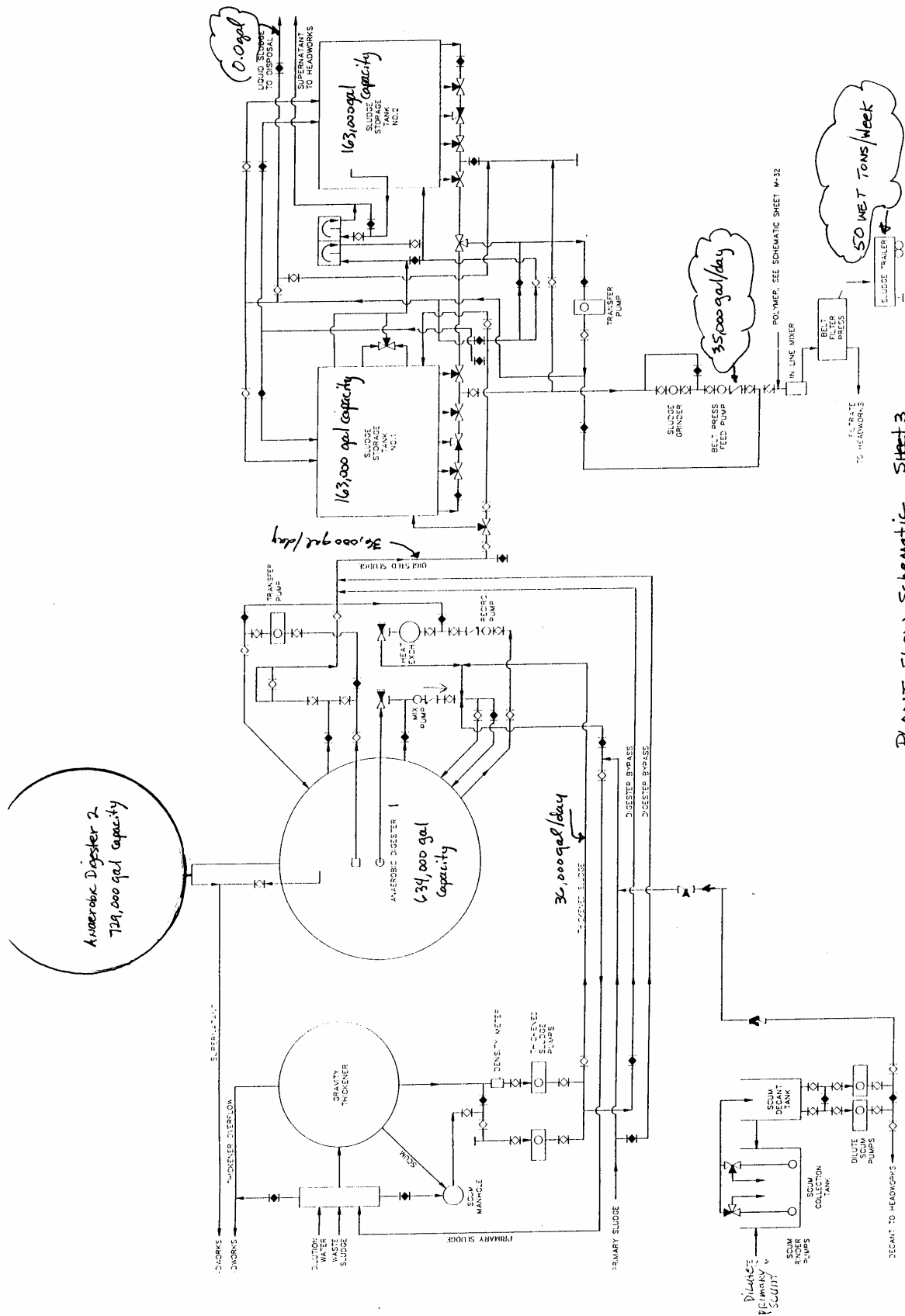
**Water Quality-based Effluent Limit**—A limit on the concentration or mass of an effluent parameter that is intended to prevent the concentration of that parameter from exceeding its water quality criterion after it is discharged into a receiving water.

## APPENDIX C—PROCESS FLOW DIAGRAMS



PLANT FLOW Schematic Sheet 1

FACILITY NAME: Midway Sewer District – Des Moines Creek Wastewater Treatment Plant



PLANT FLOW Schematic SHEET 3

## **APPENDIX D—TECHNICAL CALCULATIONS**

Several of the Excel® spreadsheet tools used to evaluate a discharger's ability to meet Washington State water quality standards can be found on the Department's homepage at ( <http://www.ecy.wa.gov/programs/wq/wastewater/index.html> )

FACILITY NAME: Midway Sewer District – Des Moines Creek Wastewater Treatment Plant

TABLE 6: POLLUTANTS OF CONCERN

Pollutant Name	CAS Number	NPDES Application Ref.	Hardness	Priority Pollutant	Carcinogen	WATER QUALITY CRITERIA (in ug/L unless otherwise specified)				Metals Translations		Source and Comments
						Acute (Marine)	Chronic (Marine)	IHHC (Marine)	Organoleptic Effects	MT - Acute (Marine)	MT - Chronic (Marine)	
AMMONIA unionized (mg/L)	7440382	2M		N	N	233	35					WAC 173-201A
ARSENIC (dissolved)	117817	13B		Y	Y	69	36.00	5.90		1.00		WAC 173-201A, NTR
BIS(2-ETHYLHEXYL) F	7782505			Y	Y							Gold Book, NTR
CHLORINE (Total Resi	744058	6M		N	N	13.00	7.50					WAC
COPPER	7439921	7M	50.0	Y	N	4.80	3.10		1000	0.83	0.83	WAC 173-201A
LEAD	7440020	9M	50.0	Y	N	210	8			0.95	0.95	WAC 173-201A
NICKEL	7782492	10M		Y	N	74.00	8.20	4600.00		0.990	0.990	WAC 173-201A, NTR
SELENIUM	7440666	13M	50.0	Y	N	290.00	71.00	4200.00	5000.00			WAC 173-201A, FR 63, 237-HH
ZINC						90.00	81.00			0.946	0.946	WAC

Table 7: Ammonia

Calculation of seawater fraction of un-ionized ammonia  
from Hampson (1977). Un-ionized ammonia criteria for  
salt water are from EPA 440/5-88-004.  
Based on Lotus File NH3SALT.WK1 Revised 19-Oct-93

INPUT		
1. Temperature (deg C):		11.7
2. pH:		7.6
3. Salinity (g/Kg):		28.7
OUTPUT		
1. Pressure (atm; EPA criteria assumes 1 atm):		1.0
2. Molal Ionic Strength (not valid if >0.85):		0.589
3. pKa8 at 25 deg C (Whitfield model "B"):		9.313
4. Percent of Total Ammonia Present as Unionized:		0.712%
5. Unionized ammonia criteria (mg un-ionized NH3 per liter) from EPA 440/5-88-004		
Acute:		0.233
Chronic:		0.035
6. Total Ammonia Criteria (mg/L as NH3)		
Acute:		32.72
Chronic:		4.92
7. Total Ammonia Criteria (mg/L as NH3-N)		ug/L
Acute:	26.90	26897.355
Chronic:	4.04	4040.3752

FACILITY NAME: Midway Sewer District – Des Moines Creek Wastewater Treatment Plant

TABLE 8: REASONABLE POTENTIAL TO EXCEED WATER QUALITY STANDARD

Parameter	Metal Criteria Translator as decimal	Metal Criteria Translator as decimal	Concentration (metals)	State Water Quality Standard		Max concentration at edge of...		LIMIT REQ'D ?	CALCULATIONS		effluent conc. measured ug/L	Coeff Variation CV	s	# of samples n	Multiplier	Acute Dil'n Factor	Chronic Dil'n Factor
				Acute ug/L	Chronic ug/L	Acute Mixing Zone ug/L	Chronic Mixing Zone ug/L		Effluent percentile value	Pn							
AMMONIA unionized (mg/L)				26897	4040.4			NO	0.95	0.224	no data	0.60	0.55	2	3.79	49	961
ARSENIC (dissolved)	1.00			69	36	0.08	0.00	NO	0.95	0.224	1.00	0.60	0.55	2	3.79	49	961
BIS(2-ETHYLHEXYL) PHTHALATE			(human health only)	none	none	0.66	0.03	NO	0.95	0.224	8.50	0.60	0.55	2	3.79	49	961
COPPER	0.83			4.80	3.10	1.22	0.06	NO	0.95	0.224	19.00	0.60	0.55	2	3.79	49	961
LEAD	0.951			210.00	8.10	0.07	0.00	NO	0.95	0.224	1.00	0.60	0.55	2	3.79	49	961
NICKEL	0.99			74.00	8.20	6.13	0.31	NO	0.95	0.224	80.00	0.60	0.55	2	3.79	49	961
SELENIUM				290	71	0.23	0.01	NO	0.95	0.224	3.00	0.60	0.55	2	3.79	49	961
ZINC	0.946			90.00	81.00	3.52	0.18	NO	0.95	0.224	48.00	0.60	0.55	2	3.79	49	961

FACILITY NAME: Midway Sewer District – Des Moines Creek Wastewater Treatment Plant

TABLE 9: REASONABLE POTENTIAL TO EXCEED HUMAN HEALTH STANDARD

Parameter	Ambient Concentration (Geometric Mean)	Water Quality Criteria for Protection of Human Health	Max concentration at edge of chronic mixing zone.	LIMIT REQ'D?	Expected Number of Compliance Samples per Month	AVERAGE MONTHLY EFFLUENT LIMIT	MAXIMUM DAILY EFFLUENT LIMIT	Estimated Percentile at 95% Confidence	Pn	Max effluent conc. measured	Coeff Variation	S	# of samples from which # in col. K was taken	Multiplier	Calculated 50th percentile Effluent Conc. (When n>10)	Dilution Factor
BIS(2-ETHYLHEXYL) PHTHALATE	ug/L	ug/L	ug/L	NO	2	NONE	NONE	0.50	0.22	8.50	0.60	0.6	2	1.52	0.00	961.0
NICKEL		4600	0.127	NO	2	NONE	NONE	0.50	0.22	80.00	0.60	0.6	2	1.52	0.00	961.0
SELENIUM		4200.00	0.005	NO	2	NONE	NONE	0.50	0.22	3.00	0.60	0.6	2	1.52	0.00	961.0

TABLE 10: WATER QUALITY-BASED LIMITS

[illegible]

### Discharge Monitoring Data, December 2000 to April 2005

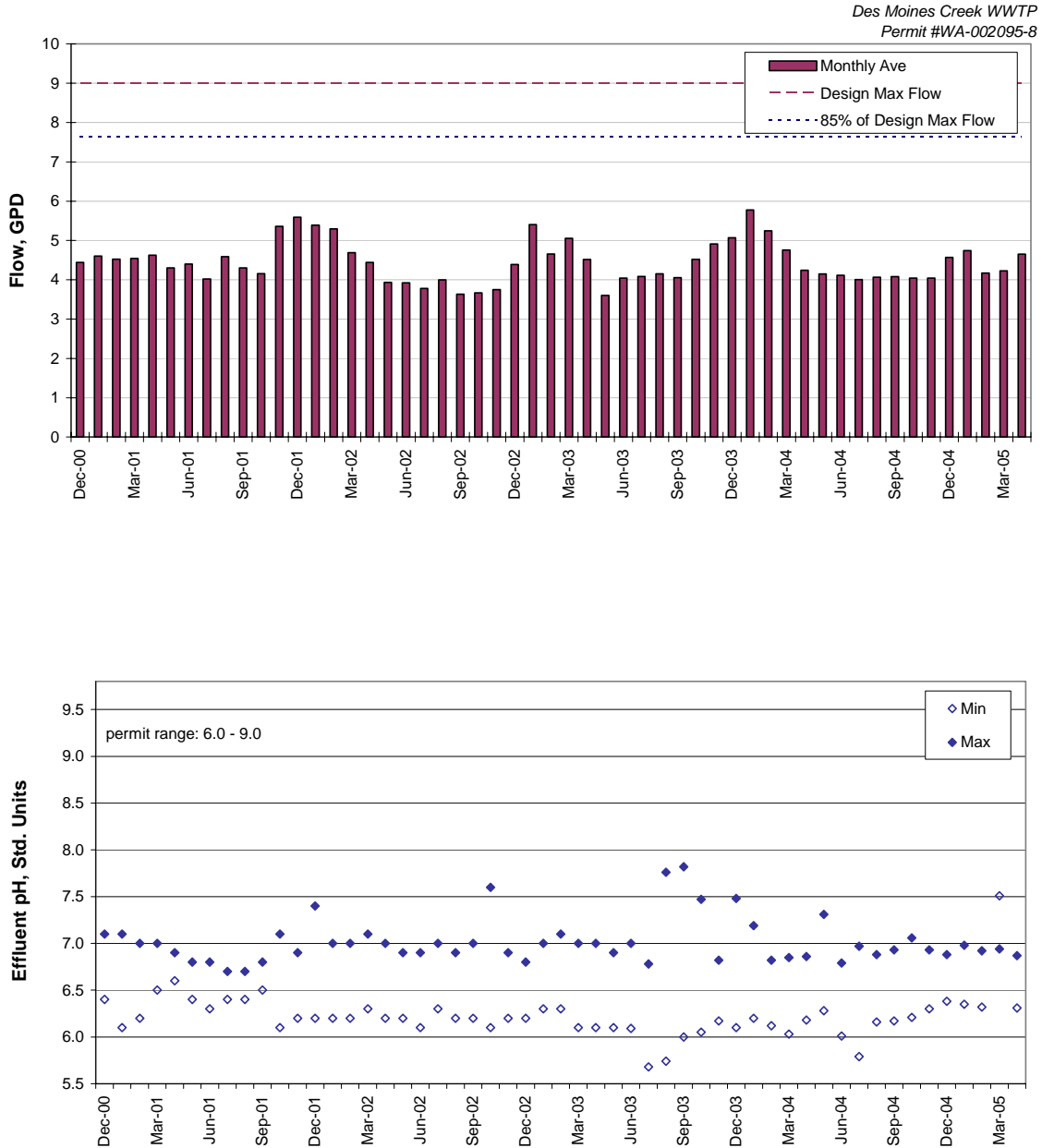
Facility: Des Moines Creek WWTP  
Permit No: WA-002095-8

Date	Influent										Effluent																					
	BOD, mg/L		BOD, mg/L		BOD, ppd		BOD, ppd		TSS, mg/L		TSS, mg/L		TSS, ppd		TSS, ppd		BOD, % Removal	TSS, mg/L		TSS, mg/L		TSS, ppd		TSS, ppd		TSS, % Removal	pH	pH	Fecal Coliform, #/100 ml	Fecal Coliform, #/100 ml		
	Monthly Ave	Wkly Ave	Monthly Ave	Wkly Ave	Monthly Ave	Wkly Ave	Monthly Ave	Wkly Ave	Monthly Ave	Wkly Ave	Monthly Ave	Wkly Ave	Monthly Ave	Wkly Ave	Monthly Ave	Wkly Ave		Monthly Ave	Wkly Ave	Monthly Ave	Wkly Ave	Monthly Ave	Wkly Ave	Monthly Ave	Wkly Ave						Monthly Ave	Wkly Ave
1-Dec-00	346	452	12,663	16,790	353	672	12,879	24,060	4.44	5.19	18	20	663	721	95	11	13	388	477	97	6.4	7.1	11	30	7	6.1	7.1	5	11			
1-Jan-01	286	368	10,979	13,725	215	354	8,224	13,203	4.60	6.01	14	16	525	578	95	10	11	40	430	95	6.2	7.0	6	8	5	6.1	7.0	6	8			
1-Feb-01	300	368	11,387	13,759	210	253	7,996	10,235	4.52	5.29	11	13	430	538	92	9	11	361	408	96	6.2	7.0	6	8	5	6.1	7.0	6	8			
1-Mar-01	287	327	10,927	12,967	200	229	7,624	8,887	4.54	5.38	8	9	298	327	97	10	11	400	448	95	6.5	7.0	7	12	5	6.5	7.0	7	12			
1-Apr-01	260	336	10,161	13,333	206	247	8,036	10,208	4.63	5.44	8	9	290	351	97	9	10	358	408	96	6.6	6.9	14	25	5	6.6	6.9	14	25			
1-May-01	302	420	10,991	12,939	260	454	9,987	15,751	4.30	4.91	10	11	367	420	97	12	13	435	513	95	6.4	6.8	19	24	5	6.4	6.8	19	24			
1-Jun-01	307	581	11,589	21,059	239	307	9,365	11,824	4.40	5.52	11	13	416	478	96	12	12	432	472	95	6.3	6.8	27	38	5	6.3	6.8	27	38			
1-Jul-01	295	337	9,809	11,522	242	287	8,097	10,537	4.02	4.83	14	17	463	505	95	14	14	458	508	94	6.4	6.7	34	72	5	6.4	6.7	34	72			
1-Aug-01	308	403	11,817	16,301	254	399	9,829	14,981	4.59	5.70	15	19	588	686	95	14	18	543	588	94	6.4	6.7	28	47	5	6.4	6.7	28	47			
1-Sep-01	308	343	11,150	13,354	262	385	9,515	15,033	4.30	4.74	13	14	458	488	96	11	12	401	417	96	6.5	6.8	26	52	5	6.5	6.8	26	52			
1-Oct-01	306	353	10,715	13,203	273	378	9,538	12,711	4.16	5.14	12	15	433	527	96	10	11	344	390	96	6.1	7.1	14	18	5	6.1	7.1	14	18			
1-Nov-01	253	351	10,895	12,699	217	354	9,454	15,612	5.36	12.00	12	19	622	1359	94	11	14	546	1020	95	6.2	6.9	12	37	5	6.2	6.9	12	37			
1-Dec-01	217	305	9,524	10,886	185	289	8,139	10,845	5.59	10.48	10	11	515	716	95	9	10	456	554	95	6.2	7.4	9	25	5	6.2	7.4	9	25			
1-Jan-02	217	275	9,657	11,560	177	239	7,897	9,909	5.39	7.85	7	34	335	1393	97	9	41	388	1666	95	6.2	7.0	3	6	5	6.2	7.0	3	6			
1-Feb-02	236	336	10,118	13,210	190	381	8,143	14,979	5.30	7.33	7	8	303	359	97	8	9	341	408	96	6.2	7.0	3	5	5	6.2	7.0	3	5			
1-Mar-02	263	302	10,330	11,611	205	346	8,025	12,893	4.69	6.45	9	10	352	396	97	8	9	331	407	96	6.3	7.1	4	8	5	6.3	7.1	4	8			
1-Apr-02	259	339	9,284	11,303	209	240	7,504	8,583	4.44	7.12	8	9	276	318	97	9	10	335	435	96	6.2	7.0	5	9	5	6.2	7.0	5	9			
1-May-02	295	378	9,643	12,749	239	284	7,816	9,578	3.94	4.28	9	9	284	300	97	10	10	324	348	96	6.2	6.9	8	10	5	6.2	6.9	8	10			
1-Jun-02	302	357	8,765	12,999	240	334	7,783	10,529	3.92	4.54	10	12	315	402	97	11	13	364	435	95	6.1	6.9	16	40	5	6.1	6.9	16	40			
1-Jul-02	301	378	9,507	11,273	247	299	7,791	9,538	3.78	4.37	16	20	512	620	95	13	19	415	572	95	6.3	7.0	26	53	5	6.3	7.0	26	53			
1-Aug-02	291	364	9,747	11,938	234	286	7,815	8,990	4.00	7.45	14	15	452	488	95	12	13	403	418	95	6.2	6.9	23	26	5	6.2	6.9	23	26			
1-Sep-02	299	317	9,067	10,174	236	263	7,148	8,092	3.63	4.16	11	12	332	370	96	13	16	386	485	95	6.2	7.0	22	34	5	6.2	7.0	22	34			
1-Oct-02	329	453	10,175	16,684	256	344	7,934	14,095	3.87	6.90	13	15	405	498	96	11	13	352	389	96	6.1	7.6	25	35	5	6.1	7.6	25	35			
1-Nov-02	306	370	9,676	10,827	234	273	7,405	8,695	3.75	4.41	12	13	373	412	96	10	12	329	354	96	6.2	6.9	38	99	5	6.2	6.9	38	99			
1-Dec-02	281	389	9,946	11,586	216	290	7,697	9,374	4.39	6.74	11	12	406	490	96	11	13	382	430	95	6.2	6.8	38	53	5	6.2	6.8	38	53			
1-Jan-03	214	308	9,422	11,709	171	218	7,588	10,152	5.40	9.15	9	11	437	581	96	9	10	433	621	95	6.3	7.0	28	97	5	6.3	7.0	28	97			
1-Feb-03	267	328	10,228	11,927	203	235	7,768	8,950	4.66	6.36	8	9	318	327	97	9	9	329	349	96	6.3	7.1	16	23	5	6.3	7.1	16	23			
1-Mar-03	300	548	12,453	19,305	183	251	7,556	8,608	5.05	7.37	11	15	447	685	97	8	10	351	434	95	6.1	7.0	15	55	5	6.1	7.0	15	55			
1-Apr-03	253	289	9,644	12,253	204	248	7,741	9,622	4.51	5.92	8	9	298	325	97	9	11	359	424	95	6.1	7.0	4	7	5	6.1	7.0	4	7			
1-May-03	293	333	8,729	10,522	233	254	6,928	8,093	3.60	4.40	9	10	266	294	97	11	12	320	338	95	6.1	6.9	9	21	5	6.1	6.9	9	21			
1-Jun-03	292	373	9,854	12,717	239	275	8,046	9,183	4.05	4.94	10	11	341	384	97	12	12	404	422	95	6.1	7.0	12	27	5	6.1	7.0	12	27			
1-Jul-03	304	412	10,339	14,782	254	318	8,638	11,409	4.08	4.30	9	11	302	380	97	11	13	389	438	95	5.7	6.8	16	30	5	5.7	6.8	16	30			
1-Aug-03	295	339	10,217	11,795	241	260	8,328	8,912	4.15	4.35	9	10	314	334	97	11	11	363	394	96	5.7	7.8	14	19	5	5.7	7.8	14	19			
1-Sep-03	301	343	10,137	11,681	242	268	8,155	9,437	4.06	4.27	11	11	367	383	96	11	12	368	396	95	6.0	7.8	18	27	5	6.0	7.8	18	27			
1-Oct-03	277	358	10,234	14,075	221	266	8,357	18,439	4.52	10.68	12	17	530	1112	95	14	18	603	1121	93	6.1	7.5	12	16	5	6.1	7.5	12	16			
1-Nov-03	257	326	10,358	11,964	196	247	7,952	9,126	4.92	7.05	10	12	418	615	96	11	13	472	671	94	6.2	6.8	15	26	5	6.2	6.8	15	26			
1-Dec-03	233	273	9,773	12,646	189	234	7,921	10,129	5.07	6.02	8	9	342	398	96	9	10	374	437	95	6.1	7.5	10	21	5	6.1	7.5	10	21			
1-Jan-04	234	392	10,612	15,699	168	206	7,663	9,236	5.78	7.89	12	17	570	799	95	9	10	431	473	94	6.2	7.2	12	16	5	6.2	7.2	12	16			
1-Feb-04	218	270	9,523	11,310	174	201	7,621	9,171	5.25	6.62	9	10	410	436	96	8	9	362	374	95	6.1	6.8	7	17	5	6.1	6.8	7	17			
1-Mar-04	249	357	8,856	15,369	191	207	7,518	8,064	4.76	5.22	10	10	388	412	96	9	9	344	385	95	6.0	6.9	5	7	5	6.0	6.9	5	7			
1-Apr-04	264	305	9,340	11,014	216	239	7,611	8,563	4.24	5.01	10	11	370	393	96	10	10	355	365	95	6.2	6.9	11	29	5	6.2	6.9	11	29			
1-May-04	269	336	9,302	11,730	218	235	7,534	8,545	4.15	4.61	10	11	351	363	96	10	11	356	377	95	6.3	7.3	17	27	5	6.3	7.3	17	27			
1-Jun-04	273	316	9,371	10,853	212	228	7,280	8,005	4.11	4.45	10	10	330	349	96	11	13	379	420	95	6.0	6.8	28	44	5	6.0	6.8	28	44			
1-Jul-04	285	347	9,485	11,709	231	271	7,707	8,882	4.00	4.23	11	13	363	453	96	12	14	412	479	95	5.8	7.0	26	42	5	5.8	7.0	26	42			
1-Aug-04	282	334	9,499	11,019	230	269	7,765	8,947	4.06	4.61	9	11	318	357	97	11	13	380	436	95	6.2	6.9	13	16	5	6.2	6.9	13	16			
1-Sep-04	291	328	9,836	12,013	227	247	7,688	9,784	4.08	4.95	14	18	459	577	95	18	26	617	866	92	6.2	6.9	14	20	5	6.2	6.9	14	20			
1-Oct-04	286	325	9,061	11,238	232	324	7,799	11,544	4.05	5.20	13	12	443	438	95	18	16	597	597	92	6.2	7.1	6	11	5	6.2	7.1	6	11			
1-Nov-04	290	361	9,728	11,856	220	260	7,381	8,591	4.05	5.10	9	9	298	299	97	12	14	416	471	94	6.3	6.9	4	6								

FACILITY NAME: Midway Sewer District – Des Moines Creek Wastewater Treatment Plant

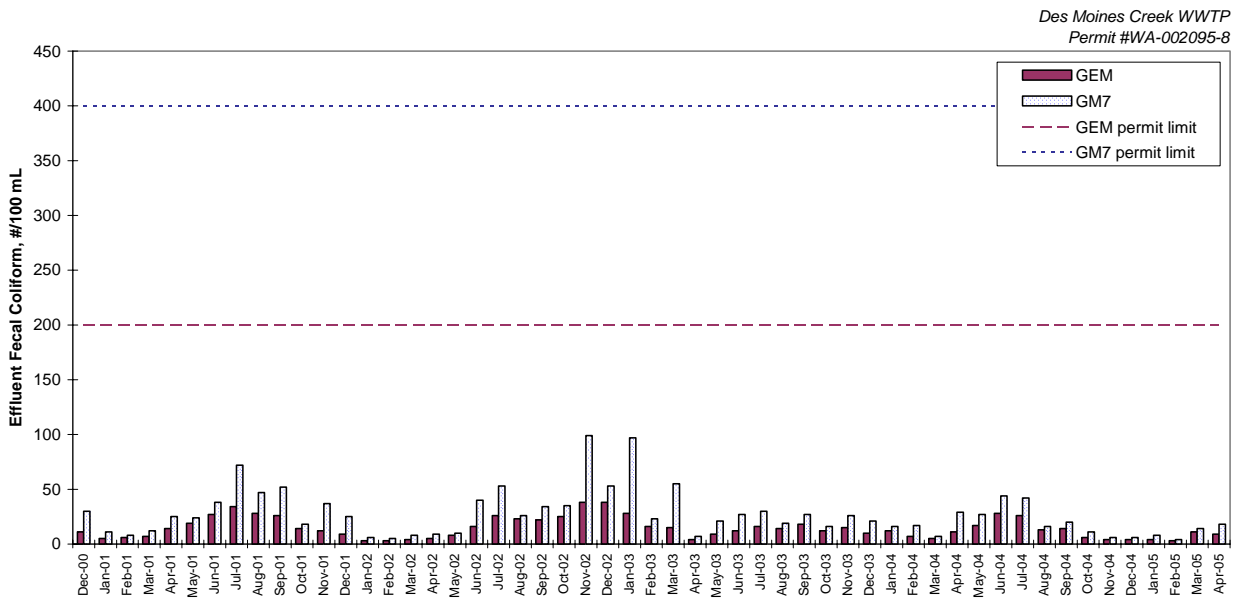
FIGURE 12: DMR DATA, GRAPHS

Discharge Monitoring Data, Flow and Effluent pH, December 2000 to April 2005



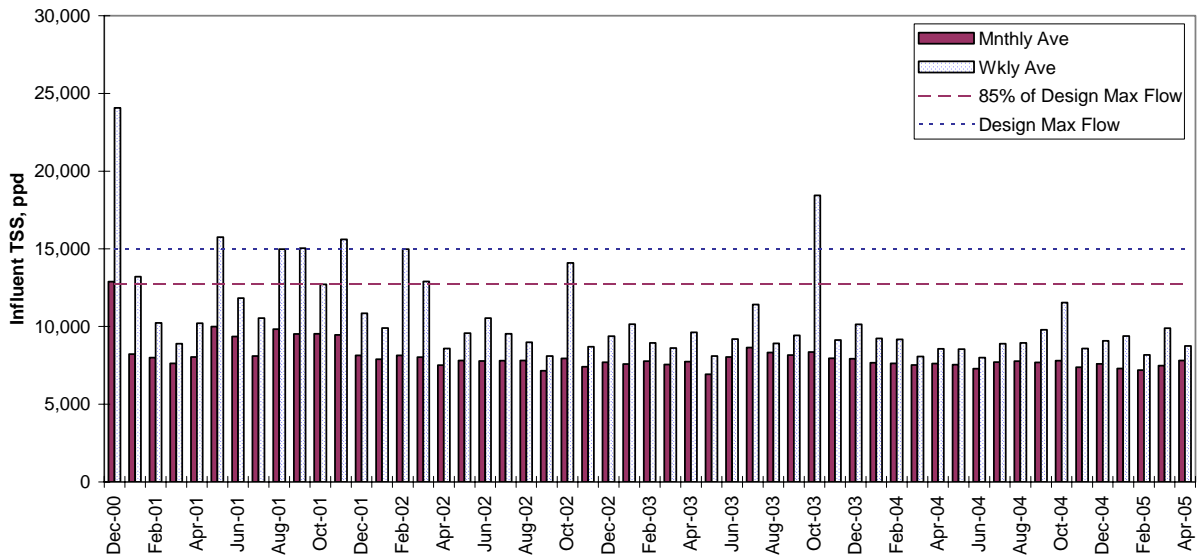
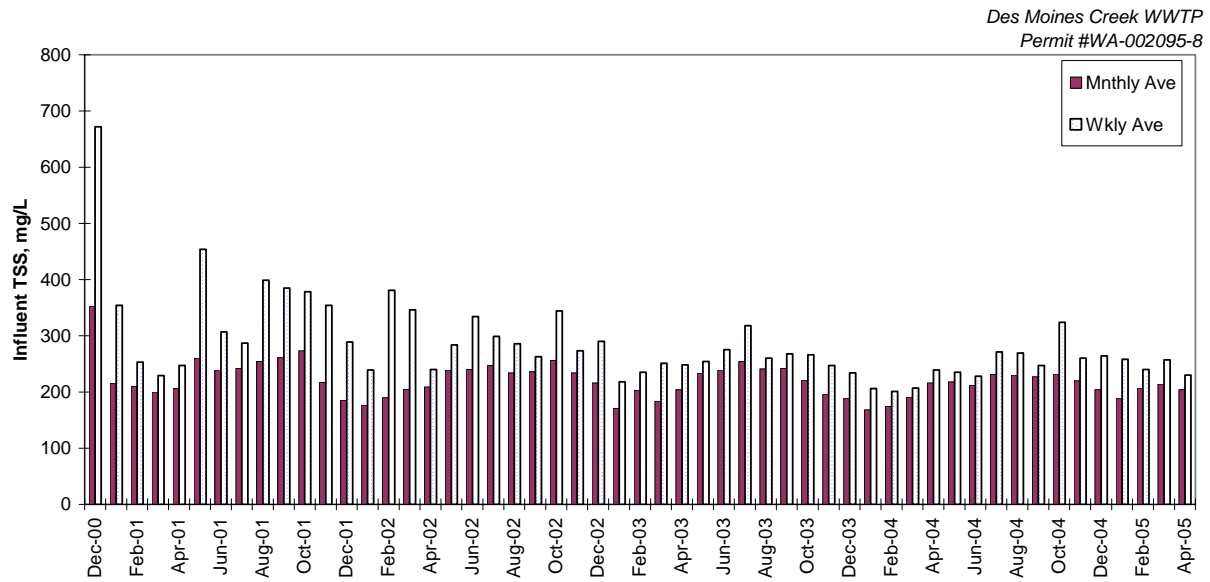
FACILITY NAME: Midway Sewer District – Des Moines Creek Wastewater Treatment Plant

## Discharge Monitoring Data, Effluent Fecal Coliform, December 2000 to April 2005



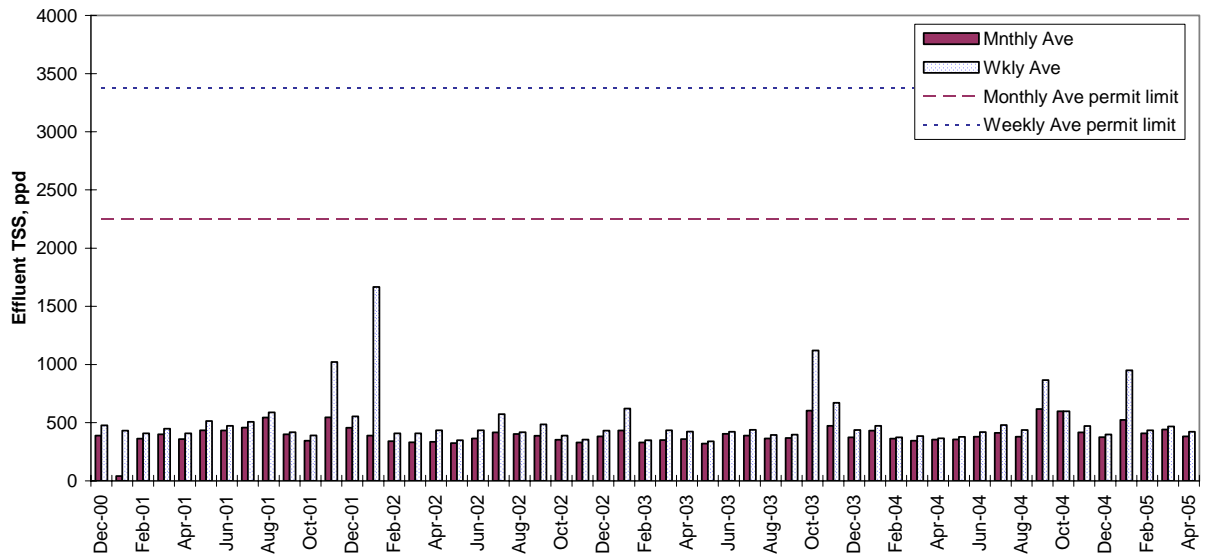
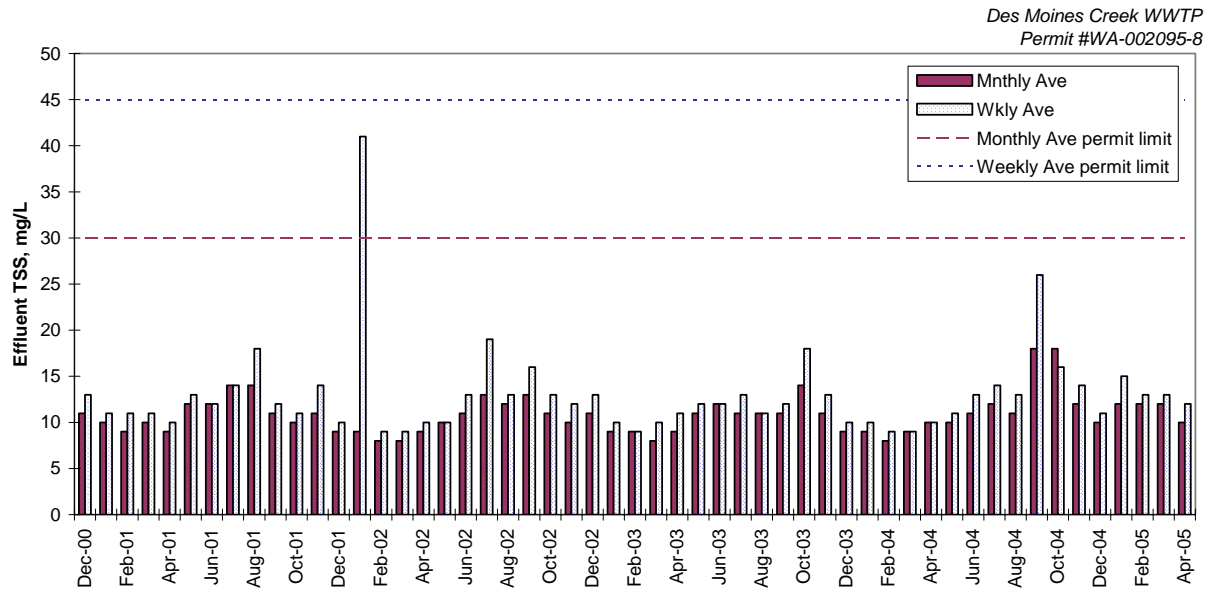
FACILITY NAME: Midway Sewer District – Des Moines Creek Wastewater Treatment Plant

## Discharge Monitoring Data, Influent TSS, December 2000 to April 2005

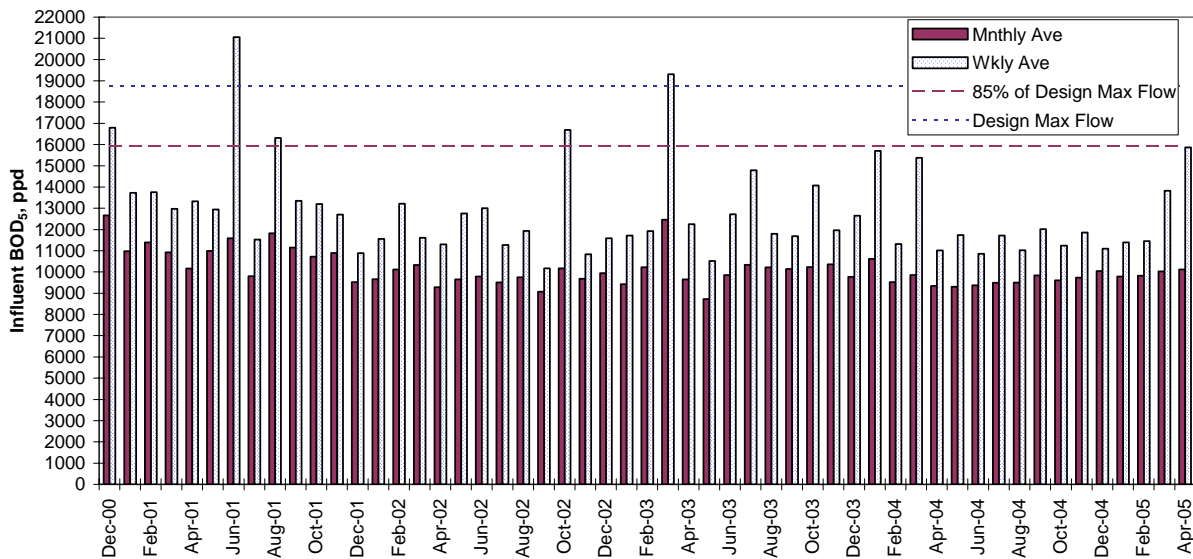
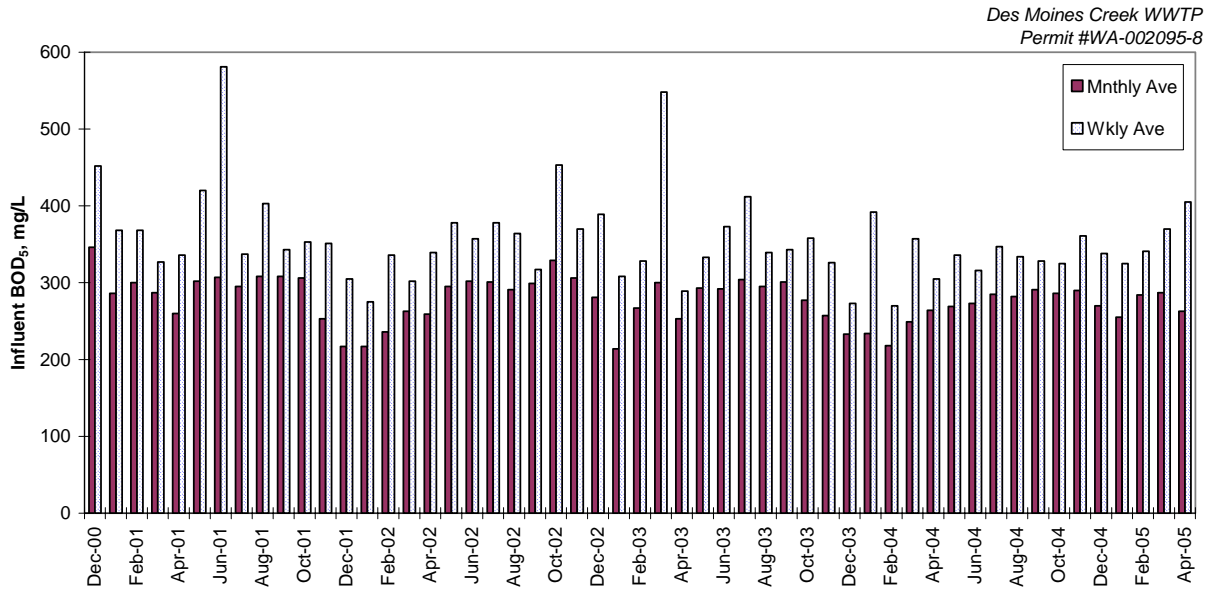


FACILITY NAME: Midway Sewer District – Des Moines Creek Wastewater Treatment Plant

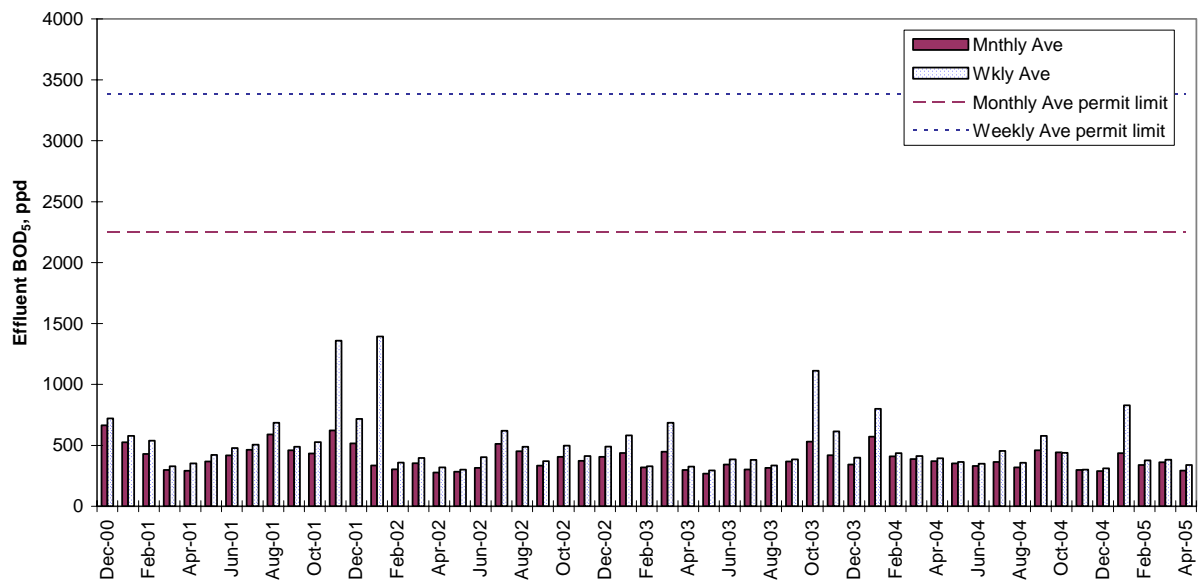
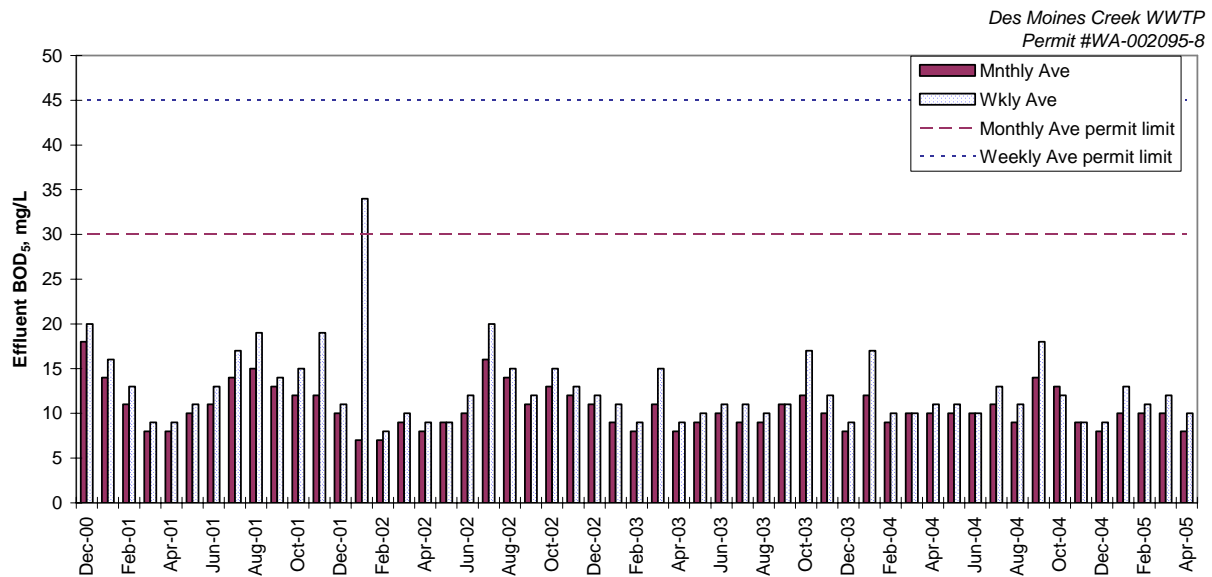
## Discharge Monitoring Data, Effluent TSS, December 2000 to April 2005



FACILITY NAME: Midway Sewer District – Des Moines Creek Wastewater Treatment Plant

Discharge Monitoring Data, Influent BOD<sub>5</sub>, December 2000 to April 2005

FACILITY NAME: Midway Sewer District – Des Moines Creek Wastewater Treatment Plant

Discharge Monitoring Data, Effluent BOD<sub>5</sub>, December 2000 to April 2005

FACILITY NAME: Midway Sewer District – Des Moines Creek Wastewater Treatment Plant

## APPENDIX F—EXPANDED EFFLUENT TESTING

POLLUTANT	MAXIMUM DAILY DISCHARGE				AVERAGE DAILY DISCHARGE					ANALYTICAL METHOD	ML/MDL	
	Conc.	Units	Mass	Units	Conc.	Units	Mass	Units	Number of Samples			
METALS (TOTAL RECOVERABLE), CYANIDE, PHENOLS, AND HARDNESS.												
ANTIMONY	<0.01	mg/l			<.01	mg/l				1	200.7	0.01
ARSENIC	0.001	mg/l			0.001	mg/l	16.01	grams		2	200.9	0.001
BERYLLIUM	<.0005	mg/l			<.0005	mg/l				2	200.7	0.0005
CADMIUM	<.0005	mg/l			<.0005	mg/l				2	200.7	0.0005
CHROMIUM	<.001	mg/l			<.001	mg/l				2	200.7	0.001
COPPER	0.019	mg/l			0.0145	mg/l	232.28	grams		2	200.7	0.001
LEAD	0.001	mg/l			<.001	mg/l	16.01	grams		2	239.2	0.001
MERCURY	<.0002	mg/l			<.0002	mg/l				2	245.1	0.0002
NICKEL	0.08	mg/l			0.04	mg/l	1281.5	grams		2	200.7	0.005
SELENIUM	0.003	mg/l			0.003	mg/l	48.05	grams		2	270.2	0.001
SILVER	<.01	mg/l			<.01	mg/l				2	200.7	0.01
THALLIUM	<.001	mg/l			<.001	mg/l				2	279.2	0.001
ZINC	0.048	mg/l			0.0455	mg/l	768.94	grams		2	200.7	0.001
CYANIDE	<.005	mg/l			<.005	mg/l					335.2	0.005
TOTAL PHENOLIC COMPOUNDS	<.005	mg/l			<.005	mg/l				2	420.2	0.005
HARDNESS (AS CaCO3)												
VOLATILE ORGANIC COMPOUNDS												
ACROLEIN	ND				ND					2	EPA 624	
ACRYLONITRILE	ND				ND					2	EPA 624	
BENZENE	<1.0	ug/l			<1.0	ug/l				2	EPA 624	1
BROMOFORM	<1.0	ug/l			<1.0	ug/l				2	EPA 624	1
CARBON TETRACHLORIDE	<1.0	UG/L			<1.0	UG/L				2	EPA 624	1
COLORBENZENE	<1.0	UG/L			<1.0	UG/L				2	EPA 624	1
CHLOROBIDBROMO-METHANE	<1.0l	ug/l			<1.0	ug/l				2	EPA 624	1
CHLOROETHANE	<5.0	ug/l			<5.0	ug/l				2	epa 624	5
2-CHLORO-ETHYL VINYL ETHER	<10.0	ug/l			<10.0	ug/l				2	EPA 624	10
CHOLOROFORM	<1.0	ug/l			<1.0	ug/l				2	EPA 624	1
DICHLOROBROMO-METHANE	<1.0	ug/l			<1.0	ug/l				2	EPA 624	1
1,1-DICHLOROETHANE	<1.0	ug/l			<1.0	ug/l				2	EPA 624	1
TRANS-1,2-DICHLORO-ETHYLENE	<1.0	ug/l			<1.0	ug/l				2	EPA 624	1
1,1-DICHLOROPROPANE	<1.0	ug/l			<1.0	ug/l				2	EPA 624	1
ETHYLBENZENE	<1.0	ug/l			<1.0	ug/l				2	EPA 624	1
METHYL BROMIDE	<5.0	ug/l			<5.0	ug/l				2	EPA 624	5
METHYL CHLORIDE												
METHYLENE CHLORIDE	<1.5	ug/l			<1.5	ug/l				2	EPA 624	1.5
1,1,2,2-TETRACHLORO-ETHANE	<1.0	ug/l			<1.0	ug/l				2	EPA 624	1
TETRACHLORO-ETHYLENE	<1.0	ug/lL			<1.0	ug/l				2	EPA 624	1
TOLUENE	<1.0	ug/l			<1.0	ug/l				2	EPA 624	1
1,1,1-TRICHLOROETHANE	<1.0	ug/l			<1.0	ug/l				2	EPA 624	1
1,1,2-TRICHLOROETHANE	<1.0	ug/l			<1.0	ug/l				2	EPA 624	1
TRICHLOROETHYLENE												
VINYL CHLORIDE	<5.0	ug/l			<5.0	ug/l				2	EPA 624	5
ACID-EXTRACTABLE COMPOUNDS												
P-CHLORO-M-CRESOL	<2.1	ug/l			<2.1	ug/l				2	EPA 625	2.1
2-CHLOROPHENOL	<2.1	ug/l			<2.1	ug/l				2	EPA 625	2.1
2,4-DIMETHYLPHENOL	<2.1	ug/l			<2.1	ug/l				2	EPA 625	2.1
4,6-DINITRO-O-CRESOL	<5.2	ug/l			<5.2	ug/l				2	EPA 625	5.2
2,4-DINITROPHENOL	<10	ug/l			<10	ug/l				2	EPA 625	10
2-NITROPHENOL	<5.2	ug/l			<5.2	ug/l				2	EPA 625	5.2
4-NITROPHENOL	<10	ug/l			<10	ug/l				2	EPA 625	10
PENTA CHLOROPHENOL	<5.2	ug/l			<5.2	ug/l				2	EPA 625	5.2
PHENOL	<2.1	ug/l			<2.1	ug/l				2	EPA 625	2.1
2,4,6-TRICHLOROPHENOL	<2.1	ug/l			<2.1	ug/l				2	EPA 625	2.1

FACILITY NAME: Midway Sewer District – Des Moines Creek Wastewater Treatment Plant

POLLUTANT	MAXIMUM DAILY DISCHARGE				AVERAGE DAILY DISCHARGE					ANALYTICAL METHOD	ML/MDL
	Conc.	Units	Mass	Units	Conc.	Units	Mass	Units	Number of Samples		
BASE-NEUTRAL COMPOUNDS											
ACENAPHTHENE	<2.1	ug/l			<2.1	ug/l				2 EPA 625	2.1
ACENAPHTYLENE	<2.1	ug/l			<2.1	ug/l				2 EPA 625	2.1
ANTHRACENE	<2.1	ug/l			<2.1	ug/l				2 EPA 625	2.1
BENZIDINE	<50	ug/l			<50	ug/l				2 EPA 625	50
BENZO(A) ANTHRACENE	<2.1	ug/l			<2.1	ug/l				2 EPA 625	2.1
BENZO(A)PYRENE	<2.1	ug/l			<2.1	ug/l				2 EPA 625	2.1
3,4 BENZO-FLUORANTHENE	<2.1	ug/l			<2.1	ug/l				2 EPA 625	2.1
BENZO(GH)PERYLENE	<4.2	ug/l			<4.2	ug/l				2 EPA 625	4.2
BENZO(K)FLUORANTHENE	<2.1	ug/l			<2.1	ug/l				2 EPA 625	2.1
BIS (2-CHLORO ETHOXY) METHANE	<2.1	ug/l			<2.1	ug/l				2 EPA 625	2.1
BIS (2-CHLOROETHYL)-ETHER	<2.1	ug/l			<2.1	ug/l				2 EPA 625	2.1
BIS (2-CHLOROISO-PROPYL) ETHER	<2.1	ug/l			<2.1	ug/l				2 EPA 625	2.1
BIS (2-ETHYLHEXYL) PHTHALATE	8.5	ug/l			7.85	ug/l	125.75	grams		2 EPA 625	2.1
4-BROMOPHENYL PHENYL ETHER	<2.1	ug/l			<2.1	ug/l				2 EPA 625	2.1
BUTYL BENZYL PHTHALATE	<2.1	UG/L			<2.1	ug/l				2 EPA 625	2.1
2-CHLORO NAPHTHALENE	<2.1	UG/L			<2.1	ug/l				2 EPA 625	2.1
4-CHLORPHENYL PHENYL ETHER	<2.1	ug/l			<2.1	ug/l				2 EPA 625	2.1
CHRYSENE	<2.1	ug/l			<2.1	ug/l				2 EPA 625	2.1
DI-N-BUTYL PHTHALATE	<2.1	ug/l			<2.1	ug/l				2 EPA 625	2.1
DI-N-OCTYL PHTHALATE	<2.1	ug/l			<2.1	ug/l				2 EPA 625	2.1
DIBENZO(A,H) ANTHRACENE	<4.2	ug/l			<4.2	ug/l				2 EPA 625	2.1
1,2-DICHLORO BENZENE	<2.1	ug/l			<2.1	ug/l				2 EPA 625	2.1
1,3-DICHLORO BENZENE	<2.1	ug/l			<2.1	ug/l				2 EPA 625	2.1
1,4-DICHLORO BENZENE	<2.1	ug/l			<2.1	ug/l				2 EPA 625	2.1
3,3-DICHLORO BENZIDINE	<3.2	ug/l			<3.2	ug/l				2 EPA 65	3.2
DIETHYL PHTHALATE	<2.1	ug/l			<2.1	ug/l				2 EPA 625	2.1
DIMETHYL PHTHALATE	<2.1	ug/l			<2.1	ug/l				2 EPA 625	2.1
2,4-DINITROTOLUENE	<5.2	ug/l			<5.2	ug/l				2 EPA 625	5.2
2,6-DINITROTOLUENE	<5.2	ug/l			<5.2	ug/l				2 EPA 625	5.2
1,2-DIPHENYLHYDRAZINE	<2.1	ug/l			<2.1	ug/l				2 EPA 625	2.1
FLUORANTHENE	<2.1	ug/l			<2.1	ug/l				2 EPA 625	2.1
FLUORENE	<2.1	ug/l			<2.1	ug/l				2 EPA 625	2.1
HEXACHLORO BENZENE	<2.1	ug/l			<2.1	ug/l				2 EPA 625	2.1
HEXACHLOROBUTADIENE	<2.1	ug/l			<2.1	ug/l				2 EPA 625	2.1
HEXACHLOROCYCLO-PENTADIENE	<5.2	ug/l			<5.2	ug/l				2 EPA 625	5.2
HEXA CHLOROETHANE	<2.1	ug/l			<2.1	ug/l				2 EPA 625	2.1
INDENO(1,2,3-CD) PYRENE	<4.2	ug/l			<4.2	ug/l				2 EPA 625	4.2
ISOPHORONE	<2.1	ug/l			<2.1	ug/l				2 EPA 625	2.1
NAPHTHALENE	<2.1	ug/l			<2.1	ug/l				2 EPA 625	2.1
NITROBENZENE	<2.1	ug/l			<2.1	ug/l				2 EPA 625	2.1
N-NITROSODI-N-PROPYLAMINE	<2.1	ug/l			<2.1	ug/l				2 EPA 625	2.1
N-NITROSODI-METHYLAMINE	<5.2	ug/l			<5.2	ug/l				2 EPA 625	5.2
N-NITROSODI-PHENYLAMINE	<2.1	ug/l			<2.1	ug/l				2 EPA 625	2.1
PHENANTHRENE	<2.1	ug/l			<2.1	ug/l				2 EPA 625	2.1
PYRENE											
1,2,4-TRICHLOROBENZENE	<2.1	ug/l			<2.1	ug/l				2 EPA 625	2.1

**APPENDIX G—EPA "PART D" NPDES APPLICATION TESTING REQUIREMENTS**

The following pollutant scan data are required at time of NPDES permit application for municipal treatment facilities with design flow greater than 1.0 mgd. At least three scans are required, conducted during the term of the previous permit.

**METALS & MISC.**

Antimony  
Arsenic  
Beryllium  
Cadmium  
Chromium  
Copper  
Lead  
Mercury  
Nickel  
Selenium  
Silver  
Thallium  
Zinc  
Cyanide  
Total Phenolic Compounds  
Hardness (As CaCO<sub>3</sub>)

**VOLATILE ORGANICS**

Acrolein  
Acrylonitrile  
Benzene  
Bromoform  
Carbon Tetrachloride  
Chlorobenzene  
Chlorodibromo-Methane  
Chloroethane  
2-Chloro-Ethylvinyl Ether  
Chloroform  
Dichlorobromo-Methane  
1,1-Dichloroethane  
1,2-Dichloroethane  
Trans-1,2-Dichloro Ethylene  
1,1-Dichloroethylene  
1,2-Dichloropropane  
1,3-Dichloro-Propylene

**VOL. ORGANICS (Cont.)**

Ethylbenzene  
Methyl Bromide  
Methyl Chloride  
Methylene Chloride  
1,1,2,2-Tetrachloro-Ethane  
Tetrachloro-Ethylene  
Toluene  
1,1,1-Trichloroethane  
1,1,2-Trichloroethane  
Trichlorethylene  
Vinyl Chloride

**ACID EXTRACTABLES**

P-Chloro-M-Cresol  
2-Chlorophenol  
2,4-Dichlorophenol  
2,4-Dimethylphenol  
4,6-Dinitro-O-Cresol  
2,4-Dinitrophenol  
2-Nitrophenol  
4-Nitrophenol  
Pentachlorophenol  
Phenol  
2,4,6-Trichlorophenol

**BASE NEUTRALS**

Acenaphthene  
Acenaphthylene  
Anthracene  
Benzidine  
Benzo(A)Anthracene  
3,4 Benzo-Fluoranthene  
Benzo(Ghi)Perylene  
Benzo(K)Fluoranthene  
Bis (2-Chloroethoxy) Methane

**BASE NEUTRALS (Cont.)**

Bis (2-Chloroethyl)-Ether  
Bis (2-Chloroiso-Propyl) Ether  
Bis (2-Ethylhexyl) Phthalate  
4-Bromophenyl Phenyl Ether  
Butyl Benzyl Phthalate  
2-Chloronaphthalene  
4-Chlorophenyl Phenyl Ether  
Chrysene  
Di-N-Butyl Phthalate  
Di-N-Octyl Phthalate  
Dibenzo(A,H) Anthracene  
1,2-Dichlorobenzene  
1,3-Dichlorobenzene  
1,4-Dichlorobenzene  
3,3-Dichlorobenzidine  
Diethyl Phthalate  
Dimethyl Phthalate  
2,4-Dinitrotoluene  
2,6-Dinitrotoluene  
Fluoranthene  
Fluorene  
Hexachlorobenzene  
Hexachlorobutadiene  
Hexachlorocyclo-Pentadiene  
Hexachloroethane  
Indeno(1,2,3-CD)Pyrene  
Isophorone  
Naphthalene  
Nitrobenzene  
N-Nitrosodi-N-Propylamine  
N-Nitrosodi-Methylamine  
N-Nitrosodi-Phenylamine  
Phenanthrene  
Pyrene  
1,2,4-Trichlorobenzene

## **APPENDIX H—RESPONSE TO COMMENTS**

No comments were received.